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THE BIOLOGICAL BASIS OF OSTEOPATHY.

Presidents's Address Fifth Annual Meeting of the A. A. A. O. at Kirksville, Mo.

C. M. TURNER HULETT, D. O.

More than four years ago—on April 19th, 1897—in this hall the American Association for the Advancement of Osteopathy was organized. It represented a new idea, a new movement, in the domain of therapeutics. Those on the outer fringe of this movement were asking the question, Will it last? The record of these four years will answer. Then there were two schools; now there are a dozen. Then there were less than seventy-five practitioners; now there are sixteen hundred. Then we were recognized by legislative enactment in two states; now by one-third of the union. Then the greater portion of the public never had heard of osteopathy, and those who had heard of it considered its adherents as dupes of another fad—or fraud. Now it is recognized as a science and an art which is making for itself an enduring place in human life and human knowledge, and which is destined not only to correct much of theory, but to profoundly modify much that had passed for knowledge, on the subject of health and disease.

The germ from which this remarkable development has proceeded was the product of the brain and the life-work of one man, whom it is our delight today to honor, and whose name will be remembered among the great ones of earth—Dr. Andrew Taylor Still. We who are engaged in the practice of osteopathy before an approving public, can scarcely realize the entire severing of all relations with former theories and associations required to present and maintain a theory so revolutionary before a wholly disapproving public. Virchow, in referring to Huxley's work, says: "Freed from the formalism of the schools, thrown upon the use of his own intellect to test each single object as regards properties and history, he soon forgets the dogmas of the prevailing system, and becomes first a skeptic and then an investigator." This sentiment would apply also to Virchow himself, and we all know something of how true it is of Dr. Still. And how remarkably the work of these men is correlated. Huxley laid the foundation for the modern study of physiology or normal function. Virchow laid the foundation for the modern study of pathology or disturbed function and its results, and Dr. Still, by discovering the key to the proper correlation and sequence of these, has laid the foundation for a rational and scientific therapeutics. Some inquiry into the nature of this correlation and the elements of this basis may be profitable to us at this time.

I. THE PROBLEM.

What is that by or through which cure of disease is effected in osteopathic practice? This question has never been satisfactorily answered. Indeed, no serious attempt has ever been made to answer it. We have been content to demonstrate the method and to point to results to prove the fact, waiving its explanation. If pressed, we have shifted the question by saying that we remove obstruction to the body processes, without explaining why these processes do not need for their restoration certain chemical reactions brought about by certain drugs. With the wealth of accumulating resource ready to our hand from the labors of biologists and physiologists, constantly strengthening our position, this ought not to be so. The limits of this paper preclude any claim to an attempt to answer the question, but its purpose will have been served if it shall suggest some of the lines along which the answer is to be sought.

II. THE NEW PHYSIOLOGY.

The physiology of organs and tissues as such, the resultant of the forces of all the members of a cell-community, has been pretty well worked out. We know the laws governing circulation and respiration, the contraction of muscle, the conductivity of nerves, the processes of digestion, the action of the sense organs, and something of the physical basis of psychic phenomena. Time was when it was thought best in investigating a particular function, to select a tissue of the highest order in which the special function was most clearly differentiated; but the necessary normal environment of such a tissue involved so many complicating conditions that the results were often contradictory and always unsatisfactory. Now the vital activities of protoplasm are studied as they are exhibited, undifferentiated and uncomplicated, in low forms of life, and the most highly specialized tissue will show nothing else but difference in degree. The problems of physiology are now regarded as problems of the cell, cell action being recognized as the sole content of all vital activity. The ameba, the lowest of all living things, a little bit of homogeneous protoplasm, yet holds within its formless, organless body all the potentialities of the most complex organism, the whole secret of life.

III. THE MATERIAL PRESENTMENT OF LIFE.

We know life only as it is manifested in living substance, and change in that substance is its one constant characteristic; accumulation and dispersion are the necessary constants of life. The living form may retain its individual shape, but its component material is constantly changing; a continuous stream of material is passing through it. At one end of the process, with a few comparatively simple substances, there is initiated a long catalogue of events resulting first in building up a great number of highly complex constituents of protoplasm, with storing up of energy, and second, splitting and oxidation processes, reducing the complex to simple compounds again, with release of energy. Only in the most general way can it be said that one end of the series is represented by plant life and the other end by animal life. They overlap, and the process is the same in character wherever we may study it. The question of environment is one of condition and not of cause; ever

the influence of sunlight in the synthesis of starch has been shown by Winogradsky to be not wholly indispensable, but that living substance may form starch without this supposedly necessary condition.

1. *Composition of Living Substance.*

Substances which enter into the nutrition of the human body are classed as proteids, carbohydrates and fats. The former comprise the chief mass of the tissues and are by far their most important constituent. They present a very great variety of forms. Hammersten names three general divisions, ten sub-divisions and thirty-two specific forms, and in his table the words "and others" occur four times. But we must remember that practically nothing is yet known of the composition of proteid, that it must vary not only for each specific tissue in the body, but that an indefinite number of changes is involved in reaching these tissue forms. An indication of these changes is seen in the digestion of proteid, in which a succession of albumoses ends in peptone, which in its turn disappears by transformation as soon as it is absorbed by the intestinal epithelium, never being found in the blood; and there are probably other changes while it is yet food, before it has become any part of living substance. The multiplicity of tissues depends on differences in their proteid constituent. Indeed, all biological differentiation probably has its physical basis in differentiation of the proteid molecule.

The carbohydrates are comparatively simple combinations of the three elements, carbon, hydrogen and oxygen. In contrast with the proteids, nitrogen is absent. They are widespread, but in some forms of living substance cannot be demonstrated. The sugars and glycogen are their important representatives in the human body.

The fats, while widespread principally in animal cells, are not an essential constituent of living substance. They are composed of glycerine and various fatty acids, the varying proportions of these determining the characteristic fat of the several animal tissues.

It has been shown that carbohydrates and fats may be derived by chemical transformation from proteids, and that, conversely, they are consumed in the building up of proteid. Pfluger has called them the satellites of the proteid. Verworn says: "The proteids stand at the center of all organic life * * * that which constitutes the life of an organism, wherein the living differs from the dead organism, is the metabolism of the proteid. * * * Vital motion, metabolism, is a complex motion very sharply characterizing the living organism; it consists in the continual self-decomposition of living substance, the giving off to the outside of the decomposition products, and in return, the taking in from the outside of certain substances, which give to the organism the material with which to regenerate itself and grow by the formation of similar groups of atoms, i. e., by polymerization. This is characteristic of all living substance."

2. *Difficulties of Physiological Chemistry.*

Mosso has said that "the living human body is like a laboratory where one meets 'no admittance' at every door and corner."

The determination of the chemical composition of living substance, if not impossible, is at least not accomplished, and not possible by any methods of chemical research now known. The beginning of the process of analysis kills

it and it is dead substance which is analyzed. Dead protoplasm is composed of comparatively stable molecules whose constitution may be expressed by a definite chemical formula. Even of these only a few are known. At one end of the series they are food elements, at the other, excretion products, both being outside the arcana of life. The stream of matter passing through an organism reaches a point at which it passes from the condition of dead matter to living substance. At another point it passes again from the condition of living substance to dead matter. We are not able to locate these points. We do not know where digestion ends and life begins. Nature makes no leaps, but passes by imperceptible gradations from one condition to another. If our knowledge of dead organic matter is limited, of organized matter under the direct influence of life we know even less. It is known that living substance has a very complex structure; that there are a large number of compounds, varying in different kinds of cells and in different conditions, which are constantly being formed, transformed and decomposed, by syntheses, rearrangements, cleavages and oxidations. The most of these compounds are used again in the organism, the product of each change furnishing the material for the succeeding change.

In living substance, the matter exists in the form of a large number of very complex labile compounds—complexes of molecules. Verworn objects to the term "living molecule" as applied to these complexes, as the word molecule signifies a definite chemical compound of some stability, while instability and change are the essential characteristics of living substance. He therefore suggests the term "biogen" to designate those exceedingly complex compounds that are at the focus of life and by means of which vital phenomena are manifested. They are constantly being formed in the process of assimilation, which through an ascending series of changes occurring along many different lines closely related and interwoven, culminates in living substance, and decomposed in the process of dissimilation, through a descending series of changes in which the biogens are broken down into simple, stable compounds with release of energy in the form of heat or work done.

3. *Chemistry of Living Substance is "Chemistry of Motion."*

Enough is known of these changes to enable us to form a picture in outline of the process as a whole, and osteopathy claims that this picture is now clear enough to require the study of disease from a new viewpoint, and to provide a new basis of therapeutics. The genesis of living substance may be expressed in this statement: *The chain of events in metabolism is a closed chain and into this metabolic cycle no substances but those that serve as food can ever enter.* Material not suitable for its upbuilding cannot be imposed upon living substance. It will take in only food elements, and only such quantity of those as its needs determine, without regard to the supply which may be available. The only way in which other substances, *e. g.* drugs, can become incorporated with living substance is by destroying it. Acids and poisons unite with it in that way. The constituent events of the metabolic cycle do not follow each other in a single line, but in many lines. Pfluger has emphasized the importance of the polymerization of the proteid molecule in growth—assimilation, in living substance, in which the simple molecule takes in from the materials of the environment atoms of food elements, attaching them to itself until it becomes a polymeric molecule. It then breaks down into simple molecules,

each of which repeats the process for itself, again and again, forming in that way numbers of chains of many similar links. Dissimilation is the reverse of this process, the end products being principally water, carbon dioxide, and urea. The successive chemical reactions in each chain or line have been compared to explosions, on account of the great lability of the compounds.

It will readily be seen that this metabolic cycle, including as it does such an immense number of constituent elements, is capable of almost infinite variation. The number and arrangement of the atoms concerned in each event, of the events in each chain, and of the chains in the cycle will account for all the variety in organic nature. Differentiation is but an expression of the variation of this cycle. All the various tissues in any organism, the differences in the same tissue or substance in different organisms, and even individual peculiarities all are due to variations of this cycle, so that the familiar expression, "one man's meat is another man's poison," has its foundation in the fundamental facts of organic structure. The continuance of life requires that this cycle shall remain intact. Its elements may be modified. One line of changes may take place more rapidly than others, thereby storing material. Another line may be retarded. But if any link drops out, the whole chain comes to a standstill in death. This order of events may vary widely in different organisms and under different conditions. The one essential factor of its existence is that its material content shall be in ceaseless change. It is, therefore, a physiologic concept. It is the fundamental physiologic concept.

Life, therefore, does not represent a static condition of the matter in which it is manifested. A static condition means death. Life represents a mode of motion of its material presentment.

4. Chemical Composition not the Sole Factor in Organization.

Protoplasm, the basis of all organisms, is something more than a chemical compound. Even Verworn's complex hypothetical biogens do not stand for organized protoplasm. It is a complex of biogens. Wilson says: "Brucke long ago drew a clear distinction between the chemical and molecular composition of organic substances on the one hand, and on the other hand, their definite grouping in the cell by which arises organization in a morphological sense. Claude Bernard in like manner distinguished between *chemical synthesis* through which organic matters are formed, and *morphological synthesis* by which they are built into a specifically organized fabric." And again he says of the cell that it has "a morphological organization, which though resting upon, is not to be confounded with the chemical and molecular structure that underlies it."

The bridge between chemistry and morphology is not yet built. Of its subtler features we are wholly ignorant. Stereo-chemistry, by revealing to us the space-relations among the elements of protoplasm, may, by reason of the great number and variety of those elements, suggest the almost infinite possibility of variation, and thus explain the evident diversity of protoplasmic structure as seen in plants and animals, in individuals, and in the same individual at different times. The biogen compounds of different cells differ from each other. "Each cell posesses its own specific composition, and its own characteristic metabolism." The morphological end of the bridge is expressed in the cell by the division into cytoplasm and nucleus, which, broadly speak-

ing, is coincident with the beginning of physiological division of labor, the nucleus being more generally concerned with synthetic processes and the cytoplasm with destructive metabolism. The cell then is the lowest form of independent organization capable of maintaining the essential processes of life. This is true in unicellular organisms and is also true of the constituent cells of multicellular organisms in which each cell must in a measure lead its independent life. Even the most highly developed tissue cells possess a morphological organization similar to the egg-cell or the protozoon. Physiologically, however, the association of cells in the higher organism requires a compromise, and the autonomy of the individual cell is in some degree, and unequally as to its various activities, made subservient to the life of the organism as a whole. Thus in the lowest organisms the properties of irritability, contractility, secretion are equally developed—or undeveloped. In the highest organism each group of cells, while retaining all the "native" properties of protoplasm, are highly differentiated for the exhibition of some one property, muscle cells for contractility, nerve cells for irritability, gland cells for secretion, and so on, in order that their particular function may be performed in times and amounts to meet the requirements of the cell community.

IV. STIMULI THE OCCASION OF ALL VITAL PHENOMENA.

The activities of living organisms consist of responses to stimuli. A stimulus may be anything which produces a change in spontaneous vital phenomena. The character and degree of response depends upon the chemical and physical forces involved in the constitution of the organism and its relations to its environment.

Typical living substance existing in an ideal environment, in which the conditions of vital phenomena—the character of the surrounding medium, the food supply, moisture, heat and light—were exactly suited to its needs would by reason of what Hering terms "the internal self-regulation of metabolism" present a condition of chemico-physical metabolic equilibrium. The spontaneous vital phenomena would present a uniform succession of events. But any change in the environment would be followed by a change in the metabolism of the living substance, an adaptive adjustment of internal conditions to external conditions. Life being manifested only by a constant change of matter, the first response would be to the presence of waste products of metabolism, which as soon as separated from the living substance are foreign matter, inimical to the welfare of the organism. It, therefore, responds to their presence by excretory action. We may imagine that the matter next to that eliminated is now moved up to take its place and that a succession of such responses occurs throughout the series involved in the integrity of the living substance. At the beginning of the series there will be a demand for new material, which will be shown by the response of the organism to the presence of food. Thus the maintenance of the equilibrium of the matter and energy of living substance itself may be conceived as a series of responses to stimuli. But these we cannot segregate and study separately, as they are inseparably bound up with life, and remain or disappear with it.

1. Forms of Stimuli.

Observation of changes in the activities of the organism in response to

changes in the environing conditions, has already yielded to investigation much of value, and is pregnant with promise of much more. Davenport recognizes eight agents that act as stimuli on living organisms, viz: Chemical substances, water, density of the environing medium, molar agents, gravity, electricity, light, heat. The effect of these, separate or combined, in modifying the course of spontaneous vital phenomena, constitute the field of cellular physiology, and pathology. It will be seen that this includes all physiological processes, when we recall that the individual cell of the body may be conceived as existing in an environment consisting of neighboring cells (including the nerve filament that may supply it), water, chemical substances (in the blood and lymph), nutrient substances, waste products, heat, and, in some cases, light; and the resultant of the variously combined effect of these upon the differentiated and specialized forms of cell substance is seen in the different physiologic functions. The action of these cells will be influenced by variations of the heat of the body, as in fevers and inflammation; by the presence of nutrient substances as in digestion and assimilation; by the presence of waste matters, as in excretion; by various manifold stimuli conveyed to them by the nerves; and in a thousand complex forms many of which we cannot yet analyze.

2. Response Property of Organism, not of Stimulating Agent.

The mechanism of the metabolic cycle precludes any effect of stimuli except in two directions, viz., excitation or depression. The successive changes have a specific order of sequence. Qualitative change in the cycle would mean death. Only quantitative change is possible. The multitude of cycles which we may imagine in progress at the same time in living substance, may be changed in their relations to each other. Some may be excited, some depressed and some stopped altogether. The infinite variety thus made possible justifies the supposition that the protoplasm in any individual may never twice be the same in structure. Protoplasm, therefore, is not to be regarded as a chemical, but as a morphological concept.

An important factor in the functioning of cells in a multicellular organism, is that the component cells, no matter how widely differentiated, morphologically and physiologically, have their limits of capacity for response approximately in the same plane; otherwise there would be no such thing as co-ordination of function. This plane varies as between different individuals and in the same individual at different times. These considerations explain the varying effect of drugs upon different persons, or upon the same person at different times, and it also explains why drug medication can never be reduced to an exact science.

V. DISEASE FROM THIS VIEWPOINT.

We have seen that protoplasm is "a highly irritable automatically adjustable substance," and that the cells in a human body respond to the stimuli of varying external conditions in an adaptive way, not only with reference to the cell itself, but also to that of the whole body, and we are now prepared to inquire into the abnormal conditions constituting disease.

1. Is Disturbance of Metabolic Cycle.

It is coming to be recognized that disease is only a disturbance of natural processes; that pathology is only abnormal physiology. The conception of

pathological conditions until recently obtaining, based on macroscopical and microscopical findings, is found to be too narrow. Morphology gives us only the products of variation. We must go back of tissue changes and alterations in body fluids for the causes and beginnings of pathology. In so doing it will be found that changes and perversions of nutrition precede changes in structure.

Recalling our conception of the process of metabolism in living substance, of a closed chain of a very large number of successive events, the completion of each event, marking the formation of a substance differing from any of the others, each of which in turn is instantly transformed, and therefore, never appearing normally as a separated product, we are prepared to understand how the interruption of a metabolic process at any point would, by causing an accumulation of the normal substance produced at that point, result in a pathological condition.

a. Variation in time or site.—Minot says, "Analysis of normal necrobiosis and degeneration forces us to recognize that all, or nearly all, the modes of indirect cell-death which the pathologist encounters in morbid tissue, recur under healthy normal conditions. To put the conclusion in its correct form we need only to reverse it, saying: Most and probably all pathological necrobiosis and degeneration of cells are essentially identical with normal processes, and are pathological owing to the arbnormality of their occurrence in time or site."

b. A metabolic link dropped out.—Verworn says, "Thus it can be imagined that in metamorphic processes the appearance of foreign substances in the cell depends upon the fact that, as a result of chronic stimulation, one or more processes in the normal metabolism are gradually decreased or have entirely dropped out, so that compounds that normally are formed, but on account of immediate further transformation do not accumulate, are now stored in quantity, because the processes in the metabolism that are necessary to their transformation no longer exist."

c. Stoppage at the wrong point.—Bunker says, "In fatty degeneration for instance, the cells seem to have lost the power of completing the proteid anabolism from carbohydrate and the process stops at the fat stage. The cell then loses its protoplasm through ordinary vital waste, and deposits the fat, instead of new protoplasm. This deposited fat, not having reached the stage of organic combination where it can be oxidized with physiological rapidity, gradually accumulates to the final destruction of the cell as such. In myxedema and in the amyloid, hyalin and colloid types of degeneration, it would seem that the stops occur at the different stages of normal cell activity, with the result that in each case, otherwise normal material fails of complete metamorphosis, and is deposited in the tissues. In glycosuria, however, the excess of glucose on account of its solubility, is carried off in the body fluids and is eliminated as such. However this may be, the products of cytoplasmic degeneration seem always to be normal physiological substances, their excess, location and environment making them pathological, proving Huxley's definition of dirt as 'matter out of place' to be true physiologically as well as physically."

2. Is Due to Failure of Normal Response.

It would transgress the limits of this paper to further discuss the analogies

justifying the conclusion, but the statement may be ventured that all disease may be ascribed to a failure of protoplasm to respond; first to the stimulus of its own internal vital phenomena, resulting in an interruption of the metabolic cycle—disturbed nutrition; and second, to the stimulus of abnormality in its environment—pathological products and bacteria—resulting in neoplasms, autointoxications and infections; and such failure to respond when continued can eventuate only in death.

a. Extraneous stimulation not necessary.—But if the capacity for response still remains, we will have this condition: Pathologic substances, by their presence in the organism act as stimuli at two points; first, at the point of initiation of the abnormal process there may be such reaction to their presence as will tend to restore normal metabolic conditions by overcoming the cause of stoppage or irritation, as in "self-limited" diseases; second, the mechanism of elimination will react to their presence by increased excretory processes to get rid of the products of stoppage or irritation. *If the conditions are right these reactions will take place if need be to the full limit of the reacting power of the cells exhibiting them.* In other words, *the cure of disease requires the presence of no other stimulus than that of its own products.* The application of any extraneous stimulus in the form of drugs, electricity, heat, water, what not—with the idea of revitalizing or reforming in any direct way, the metabolic cycle, is not only futile, but wholly superfluous, and "adding insult to injury." Nature neither needs nor can use any assistance in her work. What nature does need and what we may do is to maintain suitable external conditions. Therapeutics then has only to do with the elements of the environment in which nature works. In this sense antidotes to poisons are necessary; heat may be applied to chilled tissues, and water may serve as a food element, or for cleansing, externally and internally.

b. Effect of environing conditions on degree of response.—If living substance responds to abnormalities in such a way as to bring about their correction, disease ought always to be cured spontaneously; indeed, it ought to be wholly prevented. That it does so respond is seen in the constant elimination of waste products of metabolism; and that there is sometimes a failure in spontaneous removal of abnormalities may be due to one or both of two conditions; to exhaustion of the power of response, or to interference with its manifestation. The first is illustrated systemically in the effects of starvation, overwork, excessive use of drugs, alcohol, etc. The second is the basis of the peculiar therapeutics of osteopathic practice and requires some examination of the mechanics of vital processes.

c. Protoplasmic mechanics.—The relations of the metabolic cycle to the conditions of its expression are very aptly illustrated by Davenport, who compares the protoplasmic mass to a factory, with many boilers and engines, much shafting and belting, and countless machines doing the most varied work. The amount of energy developed in the boilers and the efficiency of the engines and machines varies with certain conditions, such as the amount of heat applied to the former, and the friction and waste in the latter. The limiting mechanical conditions are reached when the boiler is rent by the steam pressure, a breakdown is caused by friction or a part rusts through and crumbles away. The limiting dynamical conditions are reached when the heat no longer suffices to form steam in the boiler, or the power is insufficient to run the machine. In either case at the structural or the dynamical limit,

work ceases. In protoplasm the *structural* limiting conditions are of two main sorts—mechanical, in which the gross structure becomes broken down, as in drying or freezing; and chemical, in which the composition becomes changed as in the effect of poisons, high temperature, strong electric current, etc. The *dynamical* limiting conditions are the absence of oxygen or other food stuffs, the absence of water necessary to the solution and circulation of the food, light, and too low a temperature. "Thus the conditions essential to metabolism are the absence of causes mechanically rupturing the machine, the absence of agents of such intense activity as to change profoundly its molecular constitution, and the presence of those agents—food, heat, light, and water—which supply or distribute the energy of metabolism. Given protoplasm under these conditions, and normal metabolism must occur; without them there is no metabolism." Surely if such a figure correctly illustrates the conditions in a bit of apparently homogeneous jelly-like protoplasm, it is not inappropriate when applied to so complex a structure as the human body!

3. Physical Conditions our only Field of Intervention.

We have seen that equilibrium in the ingestion and output of substances—normal continuity of the metabolic cycle—by the cell is the essential internal condition of the integrity of the vital processes. This equilibrium will be maintained by reaction of the cell to changes in its environment to the full limit of its reacting power. In order that this power of reaction shall be normally expressed, it is necessary that the physical conditions of the cell substance shall be normal. We are barred from any direct participation in the vital processes so far considered. We cannot impose upon the organism an exercise or a condition not required by the laws of its economy. Our field of intervention must then lie in the *physical relations* existing in the organism. Let us examine these conditions.

a. Size of cell.—The size of the cell is one of these conditions. By the operation of certain mathematical laws of growth governing the relation of surface to mass, the single cell is kept very small, so that a close relation between the cell and surrounding medium is possible. In plants where air is the medium, exposure is secured by extensive external branching. In animals where the medium is liquid, exposure is secured by extensive circulatory channels. Its bearing on the mechanics of nutrition is the only reason for referring to this here.

b. Movement of cell substance.—Another condition is the movement of protoplasm within the cell, a characteristic clearly shown in low forms of life, in which constant currents in the cell substance are found. In the hair-like pseudopodia, which many of these organisms throw out, outflowing and return currents are to be seen. Even when these pseudopodia themselves are so slender as to be almost to the limit of visibility under the microscope, these currents have still been demonstrated. Similar movements in cell substance either *en masse* or of a fluid portion through the interstices of a recticulum occur in the human body in the cells of glands, epithelium, muscles, nerves, in the blood, and possibly others. These movements aside from their relation to the special function of the cell, are necessary to the ingestion of nutrient material, the exchange of material between different parts of the cell, and the egestion of waste products.

c. Contractility.—Perhaps the most important physical property of the

cell is that of contractility, a property that is characteristic of protoplasm, and although the complex requirements of such an organism as the human body have resulted in highly specialized cells for certain properties, yet these cells have lost none of the fundamental properties of protoplasm. For instance, muscle cells, differentiated for contraction, still exhibit irritability and secretion. Gland cells differentiated for secretion are still irritable and contractile. Nerve cells differentiated for irritability still secrete as required by their own metabolism, and retain contractility as shown in the contraction and ameboid movements of ganglion cells in the lengthening and shortening of their dendrites. In the ameba, stimulation producing contraction causes a drawing in of the pseudopodia and the coming to rest finally in the shape of a sphere, the expression of extreme contraction. This causes a reduction of the metabolism, possibly directly, certainly by restricting movements of cell substance, below the point necessary for its continuance, and if the stimulation is maintained, death results. This phenomenon has been the subject of research by many investigators and in a great variety of organisms. Verworn very concisely states the results when he says that "it is found to be a common law that all elements, the contractility of which can be clearly expressed * * * without exception die in the phase of contraction. * * * Overstimulation, in its most general significance is nothing but that which has been termed elsewhere, external causes of death." On the other hand, the effect of stimuli is sometimes to cause inhibition of contraction. In unicellular organisms this is evidenced by cessation of the rhythm of the contractile vacuole, swelling of the protoplasm from the imbibition of water, the formation of other vacuoles, and death in the phase of expansion. Thus the two extremes, maximum contraction and total inhibition of contraction, when persistent, result in death. Between these two points the vital condition of the organism will vary from time to time, as one or the other limit is approached, but because this is something which is not amenable to manipulation on the dissecting table, under the microscope, or in the test tube, it has received scant attention. Nevertheless the conclusion is forced upon us that the conditions of mechanical stress in the cell structure and in the tissues, varying in degree and in time, the result of chemical, thermal or other stimuli, acting either directly or as mediated by disturbed nerve mechanisms, are important factors in the problem of the causation of disease.

d. Nerve stimuli.—Somewhat different in character and scope, but yet intimately related to cell-activities is the effect of nerve stimuli. In all the higher vertebrates and especially in man the predominating influence of the nerve is almost absolute. So dependent are the other tissue cells upon this form of stimulus that in its absence spontaneous action is lost or sinks to the lowest point. A skeletal muscle never contracts except it is stimulated, and if its nerve supply is wholly lost, its metabolism sinks to so low an ebb that it degenerates by atrophy. Gland cells are another example of this dependence, and even in the nervous system itself there is often an interdependence between ganglion cells. Much confusion still exists among physiologists as to the nature and mechanism of nerve stimuli. The older physiologists held to the conception of a complete control of all functions by a nerve force, originating in and proceeding from autocratic centers. A few materialistic physiologists of the present day deny the existence even of any "centers" in the older sense; that nerves are simply paths for more quickly transmitting

stimuli between widely separated structures and that the ganglion in the reflex arc is nothing more than a part of the conducting path over which the stimulus passes, *e. g.* from the skin to the muscle, that it is no part of the function of the ganglion to reorganize or modify the stimulus in any way. These are the extremes. The truth probably lies between them. The direct effect of nerve stimuli upon processes of metabolism; upon the processes of secretion and excretion, as in gland cells, and in the regulation of the conditions of stress—tone—in all contractile tissue, both intra- and extra-cellular, show the importance of the part they play in co-ordinating the innumerable activities in so complex an organism as the human body. The contractility of dendrites is an important point, considered in connection with the statement that the relation between the dendrites of one nerve and the axone of another is that of contiguity but not continuity, there being indeed a little piece intercalated between them, as it explains how nerve currents may be "switched."

c. Movements of medium.—Movements in the medium, by which transportation of substances is effected has been referred to above, so far as the contents of the cell are concerned. The problem of systemic circulation, important in itself, is beyond the intent of this paper, but clearly involves questions of mechanics.

At this point our discussion takes us over into the activities and relations of tissues and organs and the cause and correction of their disturbance, where in practice, the art of osteopathy demonstrates the correctness of the interpretation of nature and her laws on which it is based.

SUMMARY AND CONCLUSIONS.

Life is manifested through matter. Physicians have to do, not with the nature of life itself, but with its material medium, a continuous stream of matter entering and becoming alive, at one point, then functioning as living substance, and lastly dying and passing out at another point. This metabolic cycle is the physiologic unit. Nothing can enter it but food material. It may be hastened or retarded, but cannot be changed qualitatively. Its interruption means death.

In living substance, as in the cell, the unit of organized life, this cycle may be conceived as being in progress at every point. Every change in environing conditions is responded to by adaptive change in the cell by change in the rate of the metabolic cycle, retarding here, accelerating there. This response will be manifested to the full limit of the responding power of the cell.

When the limit of response is reached, death ensues. Below this limit we may have all degrees of response. When unimpeded it expresses normal vital activity, varied according to changing conditions of environment. When disturbed so as to impair the equilibrium of the vital activities, we call it disease.

This response is always such as tends to restore normal conditions. Disease is then the stimulus to its own cure. That cure shall result it is not necessary that stimuli shall be increased or multiplied. It is only necessary that physical conditions shall be made right, in order that existing stimuli may be effective.

These conditions are the elements of the environment, heat, light, moisture,

circulation of fluids in and to the cell, condition of contractility in the cell substance, and free intercellular intercommunication.

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SEQUELÆ OF ABORTION.

Paper read before the A. O. A. Convention at Kirksville, Mo.,
by DR. M. E. CLARK,
Instructor in Gynecology and Obstetrics in American School of Osteopathy.

Abortion, technically, is the expulsion of the products of conception at or before, the end of the third month, yet in common parlance it is understood to mean the premature expulsion of the fœtus and includes miscarriage. It is quite a common condition and is constantly on the increase, especially the produced form. The accidental form is also on the increase, possibly on account of the increasing number of cases of endometritis, displacements of the uterus, method of dress, lack of exercise leading to general underdevelopment and also to the general weakness of the woman of today as compared with the woman of a few decades ago.

The process of abortion is similar to that of labor at term. The rhythmic contractions that are ever present markedly increase in intensity, really amounting to extreme labor pains. The os dilates, the tonicity of the cervix is gradually overcome, followed by the expulsion of the embryo with or without its appendages, few after pains and a slight lochial discharge lasting from four to seven days and by rapid involution. Colostrum frequently forms in the breasts, the patient feels somewhat weakened, but is up in from three to six days.

The immediate dangers of abortion are hemorrhage and infection. It is not a natural process, hence the dangers, unless care is taken, are greater than in normal labor. The hemorrhage, as in other uterine hemorrhages, is due to some interference with uterine contraction. You will remember that the middle muscle layer of the uterus is arranged like the figure eight, the fibres encircling and entwining around each blood vessel. When these fibres contract they make an effectual ligature. If they do not contract the blood vessels remain open and hemorrhage follows. This failure to contract is common in abortion on account of the unprepared condition of the uterus; however, it is easily checked in most cases by strong circular massage over the

uterus or strong stimulation in the back, especially at the lower lumbar region.

The infection, or child-bed fever, is the result of incomplete abortion or meddlesome midwifery on the part of the attending physician.

This infection seldom arises from within, but is most commonly introduced from without. If instruments, douches, or any intra-uterine manipulation is attempted it greatly increases the liability of infection. I doubt whether septic fever will arise even though some of the membranes are retained, unless the infection is introduced from without. This statement is based on cases of incomplete abortion not followed by fever. The prophylaxis of infection is first, complete removal of membranes; second, avoidance of frequent digital examination, and third, prevention, if possible, of the introduction of anything foreign, such as douches, instruments, etc.

The secondary effects or sequelæ proper are the conditions that most interest us as osteopathic practitioners Many a woman dates her ill health to an abortion or a miscarriage. In some, it amounts to a disease of the most weakening type, in others, only to an inconvenience such as slight backache or leucorrhœa.

The first of the general classes of sequelæ of abortion that I will mention are menstrual disorders. Dysmenorrhea is often found, it being of the inflammatory type. The patient complains of an uneasy, heavy sensation, but of no acute pain until the flow starts. After it commences, the pain, usually cramp-like, continues until the termination of the flow. This discharge is clotted, and is accompanied by a hyper-secretion of the mucus.

Menorrhagia is a more common sequel of abortion. How common it is for a patient, pale, anemic and breathless, and suffering with profuse menstruation to present herself for treatment. If the patient is a married lady, I always suspect abortion and make inquiry for same. In getting the history, it will be ascertained that the menses were regular and the patient was apparently enjoying good health up to the time of the abortion. Whether accidental or intentional, it is liable to be followed by a relaxed uterus, or a congested endometrium, both of which are conducive to an irregular or profuse menstruation. This is almost certain to occur if the patient has a weak back to begin with, or in an osteopathic sense, has a lesion or lesions of the lumbar vertebræ innominate bones or sacrum. These lesions interfere with the center controlling both blood and nerve supply to the uterus, thereby interfering with involution, with menorrhagia as a sequel. I want to emphasize this one point, these bony lesions are the predisposing causes of these sequelæ, the abortion the exciting cause. If the lesions do not exist, the exciting cause acts with difficulty or not at all. If they do exist the exciting cause acts in intensity and with rapidity, in proportion to the amount of the disturbance of the predisposing causes; therefore, in treating such cases always correct the bony as well as the muscular lesions along the lower part of the spinal column or else the mere replacement of the uterus or the ordinary local treatment will do little, if any, good.

Anemia or malnutrition is also a sequel of abortion. Anemia is due to one of two things; first, loss of blood; second, defective formation of same. Since menorrhagia is so common we would attribute the anemia to the loss of blood, although the blood-forming organs are sometimes at fault. In such cases, the patient is weak and exhausted. Her back aches, and sleep is not refreshing. The bowels are costive, secretions lessened, the skin dry, the heart irritable,

digestion and absorption poor, in short, every organ of the body suffers. The patient is melancholy, gloomy, irritable, morose, ill-tempered in fact, ill. She is a nervous wreck. The nerves are fed on waste laden blood. Sometimes these derangements are reflex, often direct from loss of blood, leucorrhœa and the disturbance of the great sympathetic centers located in the pelvis regions. Byron Robinson says "the most important sequel of abortion is its baneful effects, at times, upon the nervous system. There is scarcely a single manifestation of the so-called functional nervous disorders from slight irritability of temper or mental depression to actual insanity that may not have its origin in abortion."

Another condition, not a disease, which is very common, is the uterine congestion. Congestions are of two classes, active and passive. Active congestions are rarely pathological. Passive congestions are always so. In active congestion the amount of secretion from the mucous membrane is increased, but the quality is not changed. In passive congestion the amount and quality are both affected. In congestion of the uterus, the endometrium suffers most and an abnormal secretion is present. The causes of this congestion are vaso motor relaxation, the result of bony lesions or infection; displacement of the uterus, or a general vaso motor disturbance directly the result of the abortion.

The immediate effects of this passive congestion are a heavy and displaced uterus, pressure symptoms, leucorrhœa, and, if chronic, inflammatory conditions. Leucorrhœa is always the result of congestion, and since congestion accompanies abortions, miscarriages and displacements of the uterus, it follows that leucorrhœa is a sequel to these conditions, that is it is thick. It is worse at the menstrual period, since the congestion is more marked at this time. This congestion, if lasting for a length of time, is followed by chronic inflammation. The form of this inflammation is a metritis, endometritis, salpingitis, or even a peritonitis with its adhesions, but the endometritis is the most common. This inflammation is an effort on the part of the organism to counteract or expel a poison or irritating factor. In this case, the poison arises from deteriorated blood. The blood deteriorates on account of an impeded or slowed blood stream.

This is the result of sub-involution or a retarded contraction of the uterus. The vessels, especially the veins, are distended. The vaso motor nerves are partially paralyzed and the velocity of the blood stream is markedly lessened. This inflammation is most pronounced in the endometrium, but invades the uterine walls, giving it in chronic cases a soft, flabby sensation on palpation while pressure over the lower part of the abdomen elicits pain.

The most important of the sequelæ of abortion is subinvolution. This is a condition of retarded contraction characterized by a large boggy uterus. Abortion being an unnatural process is very likely to be followed by imperfect contraction. Involution is the result of absorption of some of the muscle fibres, atrophy of others and contraction of all. Following labor involution is natural, and occupies about six weeks. Sub-involution is a condition in which the involution is slow and prolonged. It is the result of non-absorption and non-atrophy of the new and thickened formations of pregnancy. The causes of this condition are, first, lesions; second, exercising too early after delivery, and third, injuries, such as laceration of the cervix. To us as osteopaths, the most important are the lesions affecting the nerve centers of the uterus. If these lesions are present sub-involution is almost certain to occur,

otherwise it rarely happens. On local examination the os is found patulous, the cervix shortened, widened and tender, and the fundus abnormally large. The cul-de-sacs are shallow, and the walls are covered with a slimy discharge. On bi-manual examination the uterus can be outlined as a large doughy tumor and tender to the touch. The symptoms are, deranged menstruation, reflex aches, general weakness and a sense of weight or heaviness in the pelvis.

Displacements, especially retro-deviations, follow this condition. The patient during the convalescent period is confined to the bed in the dorsal position. The sub-involuted uterus drops back, the ovaries prolapse, the round ligaments are softened and stretched and the uterus tends to remain in this position. It is rare to find a forward displacement, but it occasionally occurs. In numbers of cases examined retroversions were found to be the most common displacement, retroflexion being next in frequency. The subjective symptoms of the displacement would be weight in the pelvis, backache in the small of the back, dragging sensation of the lower limbs, pain and shortness of breath upon exertion. I am treating at present a typical case of this kind of a sequel to abortion. The lady came to the Infirmary some five weeks ago suffering with everything, but principally menorrhagia, pain in the back (at second lumbar) and neuralgia of the head and face. In getting the history of the case it was ascertained that she had had an abortion some six months previous, that these troubles began at that time, she being fairly well before. Upon local examination the uterus was found to be twice its normal size, os patulous, cervix shortened, and a general metritis which had extended to the bladder causing a mild cystitis. On examination of the back the innominate bones were found displaced upward and backward and the muscles and ligaments contracted along the lower lumbar region. I did not rely upon local treatments to cure this case, but concentrated the work at the bony lesions found at the second lumbar, the sacro-iliac synchondrosis and in the upper part of the neck. The backache has been entirely relieved, the headaches helped, the uterus reduced in size, but as yet the menstrual disorder is very little helped. I might mention here that most cases of backward displacements of the uterus can be reduced without local treatments.

The reflexes form an important sequel of abortion on account of the wide ramification of the sympathetic nervous system, since every viscus is brought in close connection with the uterus. My idea of a reflex disease is that two things are essential. First, an exciting cause affecting some organ that has an abundant nerve supply, and second, a lesion interfering with the function or weakening the organ that is reflexly affected. To illustrate, in reflex heart troubles there must be a lesion weakening the heart as a predisposing cause and then some disturbance of a viscus, the uterus being the one most commonly disturbed. The impulse is transmitted over the entire nervous system, but finally becomes localized and affects the weakest part most. As a result of abortion, the entire pelvic nervous system becomes deranged and the equilibrium destroyed. Impulses are sent over the various nerves and other organs weakened by lesions are affected reflexly or secondarily. This is very clearly marked if laceration of the cervix exists. On account of the disturbed equilibrium of the nervous system hysteria and spinal irritation or hyperesthesia are common. The stomach is deranged, headaches are frequent, sinking spells occur, the skin is inactive, in short, these reflexes are as many as there are organs to be affected.

As a common sequel to abortion habitual abortion is liable to occur if it has once happened. This is especially true if a bony lesion or constitutional disease was the cause of the first. The resistance offered by the cervix is more easily overcome, the rhythmic contractions of the fundus are increased and if an exciting cause is present, abortion is very likely to be the result.

After all, the diagnosis of the sequelæ is not so difficult, but the question that confronts us and sometimes entirely blocks the way is, how can we overcome these sequelæ? Several hundred cases have been treated here successfully. Bony lesions were found as the prevailing predisposing cause, and upon their correction the per cent. of cures have been very high. The treatment in these cases has been substantially as follows: First, correction of these bony lesions; second, correction of uterus displacements; third, manipulation of the abdomen along the course of the return circulation and lifting the intestines from out the true pelvis, and fourth, strong stimulation of the lumbar and sacral regions. The time for cure varies from one to twelve months, it depending entirely upon the individual case.

To summarize, we would say the most important sequelæ of abortion are: First, sub-involution with its reflexes, displacements and pain; second, menorrhagia with its accompanying loss of strength and anemia, and third, the baneful effects upon the nervous system, giving rise to the various functional nervous diseases.

Osteopathy is successful in preventing these sequelæ and is also successful in correcting them even in chronic cases, the result of improper treatment or accident.

DISCUSSION OF DR. CLARK'S PAPER.

Mrs. Patterson—The success that we have had with this class of cases is wonderful, and it is the only treatment that should ever be given in such cases because it is the most rational, common sense and we secure results by the treatment.

Sometimes we are successful in stopping the threatened abortion. We would like to hear from those who have had experience along this line.

Miss Chambers—Is it well to treat during pregnancy?

Dr. Clark—I think it is decidedly so. I have had cases that I have treated during pregnancy and some that I have not, and those that were treated got along better than those that were not treated. I would say, in every case, treat during pregnancy.

Is it well to treat the uterine centers? And must the treatment be light, or is there danger of causing abortion?

The treatment will not cause an abortion unless you hurt the patient. The treatment should not be hard, but along the spinal column, where there is an abnormal condition, and instead of producing an abortion, you prevent it.

Mrs. Patterson—There is one thing to be careful of when you have a pregnant patient. If there should be a miscarriage by accident, a medical doctor will likely say you caused it. Give the treatment carefully. One reason why the patient gets along better is because we relieve the uncomfortable feeling. Where there is sickness, we can relieve it in a very few treatments. I think medicine would never do that. There is one center that must always be avoided. The second lumbar.

Miss Harwood—Is there any special treatment that you would give to relieve the sickness?

Answer (Mrs. Patterson)—I can get success in treating the fourth dorsal on the right side between the fourth and fifth, by holding the thumb on that center. Such sickness can be stopped in from one to three minutes by such a pressure there.

Did you give the treatment during the sickness?

Yes, if the patient is sick at the time, and they are usually sick three or four hours in the morning, and sometimes all day long. You can stop it immediately by a treatment that will relax the ligaments. The patient will not be sick after the treatment is given.

Dr. Hickman—Is it true that you should not treat during menstruation?

Dr. Hibbs—In regard to when to treat, I am like the evangelist: I say, now. No matter whether it is sickness or the menstrual period. I believe if the osteopath is competent, he will not injure any condition. If you have a normal condition, the treatment will have little or no effect. If there is any time that a patient should be treated it is during pregnancy. Get your patient strong, and when the crisis comes, you will have less trouble.

One osteopath, a beginner, who went out treated a woman during pregnancy and did so by letting her lie on her abdomen. The woman had a miscarriage. Whether that produced it or not, I think it was a mistake.

Question.—Should you treat the patient during menstruation would it increase the flow?

Answer.—I never treat below the twelfth dorsal unless the patient is suffering pain; then treat to relieve the pain.

Ques.—What is the method of procedure in treating threatened abortion?

Ans.—By a stimulating treatment over the pubes. There is one thing in Dr. Clark's paper that should be emphasized. In the position of the uterus—there is a tendency to read-just that where the ligaments are so weak that it does not do at all. Dr. Clark speaks of strengthening the ligaments first. I find that is true. Treat until you strengthen the ligaments and the uterus will be replaced without any local treament.

CLINICS.

At the last annual meeting of the A. O. A., on the afternoon of July 3, Dr. Arthur G. Hildreth conducted the clinics, a stenographic report of which follows:

Dr. Hildreth—*Mr. President and Members of the A. A. A. O.:* I have two cases to present to you today; one a little girl who is now before you and another case selected especially for this occasion because of the value to our profession of knowing what can be and has been done with conditions that for years have been pronounced hopeless. In our practice, we have succeeded in reaching results with numerous cases pronounced incurable. Again, I wish to call your attention to the fact that theoretically our practice is beyond comparison, and with the cases which I present you today I wish to demonstrate actual practical results obtained by following out the theory which is the foundation of our practice.

One of these cases will illustrate fully what I said last evening when I said we have no right to turn from our doors cases that we believe we cannot cure, provided you take the patient with your position and opinion clearly stated. By this, I mean that you speak frankly to the patient. Tell him that you question the result, but at the same time give him the opportunity to receive the benefit if he desires to try it. We ought to do this from the fact that in our practice we have had such a short time to demonstrate just how far osteopathy can go in all kinds of conditions. The reputation which our practice today enjoys was made largely through just such avenues as this and by curing cases pronounced hopeless and incurable.

This first little patient is Miss Iva B., of Galatia, Kan. She has been under treatment here for two months. Her condition is what you might call progressive atrophy of the muscles, a condition wherein muscular life alone is involved and not organic life. She is now eight years of age. I want you to see her condition because it is a remarkable one. The first of the kind that has ever come under my care, and one that is not often found. You as osteopaths understand that it is seldom we find two cases alike.

(After baring the spine, Dr. Hildreth held the patient up in full view of the entire audience, showing a lateral curvature to the left ranging from the fourth dorsal to the third lumbar inclusive.)

In looking at this spine you will see the curvature. I want you to note one thing; I can straighten it by manipulation.

(By simply taking hold of the spine, Dr. Hildreth was able to straighten it entirely. It was a curvature simply from lack of strength in the muscles and ligaments to hold the articulations in place.)

As a baby she was normal. She stood erect all right. They have a photograph of her where she stands alone. She cannot do that now. It has been a progressive trouble and involves every muscle of the entire body.

In our judgment, the condition came from an injury. She was hurt at some time about the fourth dorsal vertebra, and the injury extended as low as the eighth, but more especially the fourth; involving the law of nutrition to muscular life and not organic life, but not deep enough to effect the sympathetic nervous system or organic life. Remember, it is only muscular life and not organic life, and that the lack of muscular strength is so pronounced that by taking hold of the spine you draw the vertebræ into line.

This patient has been under treatment two months. She can now raise herself up when lying flat on the floor, something she has not been able to do for a number of years. The treatment has been a specific treatment applied at the fourth dorsal vertebra, that being the point of the spine which was first involved from her injury. Of course, in the treatment I have been obliged by manipulations to keep the spine as nearly straight as possible. That would necessitate my treating the same the entire distance from the fourth to the third lumbar, but the specific treatment has been applied as before indicated.

Question—Does she suffer with indigestion?

Answer—No.

Question.—Is there a lack of nutrition to the spinal cord?

Answer.—My judgment is that the cord is more or less impoverished.

Question.—Is there lack of peripheral development to the phalanges?

Answer—No.

Question.—How much has she gained?

Answer.—From thirty-seven to forty-two pounds.

Question.—Is there an interference with the upper cervical?

Answer.—The interference seems to start at the fourth dorsal vertebra.

Question.—Is there a more marked disturbance at the fourth?

Answer.—There is. It simply seems to be a twist between the articulations of the fourth and fifth.

Question.—In curvatures in general what have you found to be the condition? Is it lack of tone of some muscles or the contraction of other muscles?

Answer.—I think, judging from my experience with curvatures that the trouble comes usually from some special injury and this injury may be of such a character as to injure the muscles on one side of the spinal column in a way that would produce a paralysis of them, then from a normal activity or contraction of the muscles on the other side, a lateral curvature could be produced, and if the injury was such that it would produce an over-activity of the muscles of one side of the spine you would have a consequent contraction of these muscles and that would produce a lateral curvature in the opposite direction, thus showing that it might be produced either from a lack of tonicity or by an irritation that would produce a spasmodic contraction of

the muscles of the same. Again, the injury could be of such a character as in a great many cases to simply weaken the ligaments and deep muscles of the spinal column which causes either a giving away of the ligaments and deep muscles and could thus produce a lateral, anterior or posterior curvature, and the character of the curvature would naturally depend upon which set of muscles were involved.

Question.—Has this trouble come from any fever?

Answer.—No.

Question.—After you have treated the case for four or five months and she seems to be getting along nicely, how hard would you treat or push it? What severity of treatment would you give?

Answer.—The treatment should be based entirely upon the condition of the patient treated. And the best of judgment should always be used in the application of the same from the fact that there are so many different conditions which must be treated, all in their own individual way. I claim that a harsh or rough treatment or one that produces pain as a rule is also productive of injury to the patient from the fact that if the treatment is strong enough to produce pain it must consequently produce soreness, and all the time used by nature to absorb this soreness through the circulation is time wasted because your treatment should be applied so as not to create a soreness, but at the same time with strength enough backed by good judgment to simply open up the avenues of nerve control and circulation to the part effected. This patient has been treated usually lying down, but I do treat her sitting up at times.

Question.—How often do you treat the case?

Answer.—Three times a week so far. In my judgment she would improve as much with two treatments a week. In a great many instances with this character of cases I only treat twice a week. I have treated this case oftener because there was no tenderness or soreness.

Qustion.—How long has this condition been observed?

Answer.—Ever since she first tried to walk. This patient came with the distinct understanding that she should take six months' treatment and after that time if any improvement was detected the treatment should be continued. The reason for this was that in conditions of this kind, which are rare, we have not had time enough since commencing this method of treatment to know just how far we could go with such conditions, as it was largely a problem whether such conditions would respond to the treatment, and I made my prognosis doubtful for the simple reason that I do not want to disappoint the child or her parents, and also by so doing they would give us time and plenty of it to get the results that are to be obtained and thus give to our profession an opportunity to do all that can be done and at the same time gives to the child a chance to get well. I mention these things in order that our practitioners and graduates may be careful to be conservative in their prognosis which never injures the physician nor the profession and at the same time is more fair to the patient.

Again in this particular case my doubtful prognosis was made from the fact that it was simply a question whether or not there was vitality enough left in the spinal cord to grow back normal strength and activity.

Question.—If the child had been brought in braces would you advise taking them off?

Answer.—In this case I should have done so. Of course, the question of removing a brace from any patient depends entirely upon the condition of the same. There have been a great many cases come to us in braces and as a rule we remove them. A person must depend upon his own good judgment. You can only tell by watching carefully the condition and see whether the braces help the spine or not. My argument is wherever the braces touch the flesh just to the extent of the area which is involved by the pressure of the braces you have an interference with the law of circulation to that part and especially in plaster paris jackets either for the body or limbs. I think shutting off the air from the cuticle, also the pressure which is brought to bear upon the entire surface by such jackets are injurious, and I would always get along without them if possible.

Question.—Would you advise a particular line of diet?

Answer.—No. I should advise the most nutritious food. In this case there is no organic disturbance. All of the organs of the body seem to be performing their natural function in perfect harmony. That being the case, I feel that she is as able to eat reasonably well prepared food as anyone.

In presenting this second case, I do it with a great deal of satisfaction for several reasons. First, from a standpoint of gain and help to the patient, and second, it is a clear case of practical results with a condition that for years has been pronounced hopeless, and it is one of the cases more than any other that goes to prove that osteopathy is a great science and that our results are practical and further that our treatment is scientific and not theoretical; also that the basic principles when applied will demonstrate by results the truth in our science.

This young lady is Miss Minnie Harding. now of this city. It is a case that has been pronounced infantile paralysis wherein both of the lower limbs are involved. She came here at the age of sixteen. She had then never taken a step in her life. She could barely move the big toe on the right foot, other than that there was no motion in either limb. This condition came as a sequel of spinal fever at the age of three months. She came to us on the second day of June, 1897, being them sixteen years of age. She has now been with us a little over four years. I say she has been with us; I mean by that she has been under our care during this time. She has not, however, taken continuous treatment. She has taken about thirty-three months' treatment during the four years. She has taken treatment for four or five months at a time and then has rested for a month or two and sometimes three. The most of her treatment has been applied twice a week. Remember, her condition came from a spell of fever. This fever was caused by an inflammation of the meninges of the cord and extended over enough area of the spinal cord to impoverish the nutrition to that point which extends from the sixth to the tenth dorsal inclusive. Mark you, this paralysis was both of motor and sensory nerve force, there being no feeling in the limbs for years. In six weeks' time after she began treatment she could begin to feel a little change in sensory and motor nerves, and now after four years have elapsed she can walk with her crutches, as you have seen her walk today. It has been a remarkable case with a remarkable result.

Our treatment was applied, understand, to the point of the spinal column that covered the area of the cord involved to the greatest extent by the inflammation of this covering. We have simply helped to drive into that spinal

cord a better, more free and normal circulation and in so doing have been able to give back life and vitality to those limbs. This case illustrates what we should all understand, that the time in which we have been practicing is far too short to know just how far we can go with conditions of this kind. It also demonstrates another fact, that where the patient gives us time enough we can and do demonstrate by actual results that osteopathy can and does cure such cases. Again, cases that have not been cured by osteopathic treatment, oftentimes, in my judgment, do not receive a cure from lack of the right kind of treatment as well as from a lack of time. In other words, there are osteopaths and osteopaths, and when I fail myself I am very loath to ascribe it to my profession and believe that the fault is mine and that I have not reached the cause as I should or I would have received better results.

Question.—Do you give treatment to the limbs?

Answer.—Yes, as a secondary treatment; not primary. Only give that treatment in order to assist nature to do its work.

Question.—Have the limbs developed to any great extent since the treatment began?

Answer.—As far as a physical development is concerned, they were fairly normal when she came. There was the average amount of flesh on them, of course, not a natural tonicity of the muscles.

I will say one thing more in regard to this case: While it is true she has been under our treatment for four years, what if it takes ten years to cure her? She will still be a young woman, and if she can be restored even in that length of time, to a normal physical condition, the result would be satisfactory, for it would at least make her equal with other women in the race of life. It is such results as this that gives us new courage to go on with our study and our profession. It also gives me the courage to take cases for treatment that have been pronounced incurable, provided, always that we take them with the distinct understanding that we do not know whether we can cure them or not.

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NOVEMBER, 1901.

OSTEOPATHIC STATISTICS.

While no doubt some osteopaths have preserved a record of the cases they have treated, there certainly has been no organized effort to keep, in a systematic manner, a clinical record of cases that have come under the care of the members of the osteopathic profession. The failure to write out a full report of cases at the time they are treated has doubtless resulted in the loss of much valuable information.

It affords us much pleasure to state that the Association, under whose superintendence this work properly belongs, has begun to move in this matter, which has already been too long delayed. Among other powers given and duties laid upon the Publication Committee by the constitution recently adopted appears the following: "The Committee on Publication shall * * * collect statistics and other information relating to osteopathy and provide for its publication," etc.

Without attempting in any way to anticipate the labors of the committee or its conclusions as to the best method of performing the work outlined by the constitution we may state that they are now considering plans for putting it into execution. While there are many details for the committee to work out the general plan will probably be this: Record blanks will be printed suitable for showing the history of the case, the lesions found, the diagnosis made, the treatment given and the progress and final results of treatment. This will be distributed among the members of the profession with the request that they record the cases treated and send in their reports at specified times to the committee. Upon receipt of these reports the committee, or someone under their supervision, will edit, systematize and have the information printed for the use of the members, either in the JOURNAL or in pamphlet form.

It need not be said that this system will not be inaugurated for the exploitation of the brilliant successes made by individual practitioners (of which most have had a share), but in the interest of a truthful record, where failures, too (of which most practitioners have also had a share), will be reported. We can learn much from our failures, and it will be of interest to know what per cent. these constitute of the total number of cases treated.

The advantages of this system will be many. It will stimulate in the practitioner a more careful diagnosis and watchfulness of the different phases attending a case. It will afford a better basis for prognosis, and while it is not expected nor is it desirable that it should result in a system of thumb rules for treatment, yet it will give members of the profession the benefit of the observa-

tion and experience of others. Further, so confident are we of the superior merits of our system of practice, we feel sure that the authoritative reports of results achieved will be a powerful argument to be used in consultation with prospective patients.

Aside, however, from these direct and practical benefits, the collection of statistics and other information will materially aid in the further elaboration of the science. It will afford material for the labor of those investigators, of whatever profession, who are seeking the solution of the problem expressed by Dr. Hulett in his very able paper on the Biological Basis of Osteopathy: "What is that by or through which cure of disease is effected in osteopathic practice?"

Dr. Fassett in an interesting article in the September *Journal of Osteopathy* proposes as "one means of advancing osteopathy," and as a means of determining "the real meaning of the results that follow our manipulations," the enlistment of the aid of such unbiased men of science as the teachers in the universities and contributors to journals of physiology and biology. He remarks that these men "could be attracted by well-presented reports of osteopathic phenomena in well-edited periodicals."

This is a step in the direction which Dr. Fassett points out, and while we believe that the problems of osteopathy will have to be worked out largely by osteopaths, we are willing to "seize on truth wherever found" and to accept aid from whatever quarter it may come.

In any event, the keeping of a careful, accurate and systematic record of cases treated cannot fail to be of vast benefit to the profession, and we bespeak for the Publication Committee the earnest co-operation of every member of the Association.

OUR SCHOOLS.

One of the most important steps taken at the last annual meeting of the A. O. A. was the one which resulted in engrafting into the constitution a recognition of the right of the profession to a voice in matters affecting the character and equipment of osteopathic schools. It will be remembered that the constitution as amended gives the trustees of the A. O. A. equal power with the A. C. O. in admitting new schools into the latter organization, as well as in examining annually those already members and deciding whether or not they shall be retained. It also provides that in case of disagreement between the representatives of these two bodies the A. O. A. shall be the final arbiter. We believe that the wisdom of these provisions will, upon reflection, be apparent to all who have the best interests of osteopathy at heart.

The public will judge of osteopathy and its future will largely be determined by the character, ability and professional efficiency of its practitioners. As to whether or not the future members of our profession are to be possessed of these traits will depend in a great measure upon the schools, as they exist for the purpose of making practitioners.

If the schools inquire into the character of those seeking admission into their classes, insist upon a rigid educational examination preliminary to entrance, provide a thorough course and see that only those are graduated who in a fair examination make the required grades—then osteopathy will take even higher rank than it has yet reached.

The practitioners of osteopathy being, as they are, vitally interested in the future of the science, it seems eminently proper that they should, through their organization, be in a position to make their influence felt along these lines, as well as to rebuke any deviation, for mercenary reasons, from a high standard either educational or ethical.

Indeed, at this time when there are rumors (not well defined, it is true) of new schools to be started, it occurs to us that possibly even more authority should have been conferred upon the profession in its organized capacity. It does not seem that there is any real need for more schools at present. It would doubtless be better for the profession if the schools already existing were given more time in which to develop before subjecting them to additional competition.

We do not mean to imply that such autocratic powers should be delegated to the profession nor that it has the inherent right arbitrarily to limit the number of schools and to say that new ones shall not be instituted. But inasmuch as the right is conceded to the Association and granted by the constitution to say what schools shall be "recognized" and to supervise the work of schools already existing, would it not be better for all concerned if these rights could be exercised earlier in the history of the schools?

The personnel of a proposed school—the character and qualifications of the individuals who are to constitute its governing board and faculty, as well as the equipment with which it is to start out, are matters of vital concern to the profession and are proper subjects of inquiry by it.

It is not every one who may succeed as a practitioner that is fitted for school work, and as this is a matter about which very many may easily mistake their own ability and fitness, why would it not be well if the profession, through its proper authorities, could kindly say to those who were seeking to enter upon such work and who were thus mistaken, "That is not your work?"

Since our last issue the world has been profoundly shocked and grieved by the murder of President McKinley. To the people of the United States, particularly, his death was felt as a personal affliction. People of all shades of political opinion had learned to love him, not alone for his patriotic statesmanship, but for his beautiful private life and his exemplification of lofty Christian virtues.

A great deal has been said in the newspapers and medical journals about the treatment given the distinguished patient by the physicians and surgeons in charge. So far as the surgical treatment of the stomach wounds is concerned no criticism can be offered; but the medical and dietetic management of the case ought to be characterized as fatal blundering from beginning to end. The story is one of untold hypodermics of morphine, strychnine, codeine and digitalis and many useless and exhausting enemas, nutrient and other, leading up to the crowning mistake, on the sixth day after the infliction of the wound, when solid food was given. From that hour the president failed rapidly, in spite of, and maybe because of, the heart-sickening exhibiton of castor oil, calomel and a heroic series of useless and deadly stimulants. Let us hope that the newspaper report that the president's physicians have sent in a bill for $100,000 is a gross exaggeration.

OSTEOPATHIC LITERATURE.

It is believed that there are at least a few people in every community where an osteopath is practicing who would be convinced of the merits of osteopathy by a *scientific* presentation of the subject. It is those who reason—the leaders of thought—that we want to reach. If we get them, others will follow.

It is feared that many thinking people have concluded from a perusal of some of the cheap, so-called "popular" literature of osteopathy that there is "not much in it." We believe, therefore, that much good could be accomplished by a united effort on the part of the profession to present our science in its true light to this class of people.

The expense of sending copies of the JOURNAL to any considerable number of people would be perhaps too great to make that method of reaching them practicable, and indeed there is much in it, while of interest and value to the profession, that would not be suitable for the lay reader.

If it appears that there is a demand, by the profession, for such papers as were read at the Kirksville meeting by Drs. Littlejohn and Hulett—papers that go to show that Osteopathy has a basis in nature and that its reasoning is supported by the known facts of science, they will be printed in pamphlet form and sold to practitioners at a price but little in advance of the cost of publication.

As an evidence of the fact that many intelligent people have a wrong conception of osteopathy, and that the way to reach such is by means of a scientific presentation of the subject, we quote the following from the October number of *The Kneipp Water Cure Monthly* of New York:

> The *Journal of the Science of Osteopathy*, a scientific bi-monthly Magazine devoted to the demonstration and exposition of the principles of osteopathy and surgery, 1 Warren Ave., Chicago, price $2.50 per annum, brings in its August number an article: "Osteopathy an Independent System Co-Extensive With the Science and Art of Healing," which was read before the A. O. A. Convention at Kirksville, Mo., by Dr. J. Martin Littlejohn, President of the American College of Osteopathic Medicine and Surgery.
>
> The science of osteopathy is unfortunately far too little appreciated, as yet. Most people seem to imagine that an osteopath is only a superior kind of masseur. Well, we would only request all those people who have no better knowledge to read attentively this article and they will then appreciate osteopathy to its full and complete extent.

Dr. Hulett's article on "The Biological Basis of Osteopathy" having been put in type for this issue of the JOURNAL, extra copies were printed and put in pamphlet form at but little additional expense and can be had for 1c per copy.

Before going to the expense of reprinting Dr. Littlejohn's article on "Osteopathy an Independent System Co-Extensive with the Science and Art of Healing," or of any other paper, we want to hear from the readers of the JOURNAL as to what they think of the idea, and how many copies, if any, they would use.

We will gladly supply a copy of the first number of the JOURNAL to any subscriber who will notify us of his failure to receive it.

The next meeting of the A. O. A. will be held in Milwaukee. Keep this in mind and plan to be in attendance.

NOTES AND COMMENTS.

Those who will be interested in osteopathic legislation the coming winter would do well to bear in mind that the subject of extending the course of study to three years is being seriously considered in our colleges, in fact, is regarded as a certain development in the near future. When the change is made, all laws which require a minimum of twenty months will to that extent fail of their object, the maintenance of the highest standard in osteopathic practice, for there will then be a higher standard which they do not recognize. The profession in those states cannot then profit by reason of this higher standard.

Legislation is the principal and most effective means by which the profession expresses itself as to what a recognized standard shall be, and what our colleges shall be and do. It is the only practical means by which the profession can regulate its schools. The question of poor schools will be finally solved only when every state has a law with such requirements that only the graduates of good schools can meet them. In this way only can the sentiment expressed in discussions and formulations in our associations be made actually effective.

To prevent cramming, which the present twenty months' course favors too much, the minimum period ought to be three years, and the sessions not less than eight months each. Indeed, no serious objection could be urged to a nine months' session, while many good arguments could be advanced in its favor. If a course in major surgery is included, then another year should be added.

C. M. T. H.

Dr. Fassett struck the keynote of osteopathic progress in his article in the September issue of the *Journal of Osteopathy*. As in all other arts, the healing arts have been developed both empirically on the "cut and try" plan, and also from the intelligent application of demonstrated facts and principles. The second method replaces the first as fast as actual knowledge becomes available. For this knowledge we depend on the men who devote themselves to the patient and exhaustive investigations by which alone it is to be secured.

This has been true throughout the history of medicine, and what has been and is true of medicine is particularly true of osteopathy; that we are dependent on these original sources for the final knowledge of fundamental vital phenomena necessary to an insight into the ultimate causes of disease.

The remark has been made by osteopathists that osteopathy owes all it knows of health and disease to the medical profession, and sometimes medical writers are quoted to show that they had unwittingly stumbled onto isolated osteopathic ideas. So they have, and the more credit to them. But that does not help materially to establish osteopathy. It is interesting chiefly as history.

The degree to which the various branches of medical knowledge have been adapted from these original sources would surprise many even of osteopathists, particularly as regards composition, structure and function, those things which are pre-eminently the foundation of osteopathy. This is true to a less extent of the characteristics of disease itself, symptoms, pathology, but even

here much has been done in independent research. While giving credit to the medical profession for such of the results of their labors as we may use, let us not neglect to credit those others who, as Dr. Fassett says, have often devoted their rest and recreation hours to wresting from nature her secrets, and only too often to have their conclusions received by the medical profession with jeers and derision.

Original records are not in suitable form, however, for either student or busy practitioner, and the compilations and condensations of them have been made for medical use, the arrangement, manner of treatment and point of view being determined by the medical theory to which they are applied. Osteopathic students are not always able in their reading to effect the required rearrangement or to correct the wrong perspective in the subjects as they find them in these text books.

This indicates one of the greatest needs of osteopathy. The professors at Harvard, or elsewhere, who may investigate problems arising in our practice will not write osteopathic text books. Osteopathists must take the results of their labors and "osteopathize" them. C. M. T. H.

Before leaving the discussion of tuberculosis evoked by Prof. Koch's famous article we will do well to note how some later articles by others have sustained ideas suggested last month. Drs. Ravenel and Pearson, in detailing experiments, insist that cows and calves infected by feeding have shown primary tuberculosis in the lungs and nowhere else, and other cases in the cervical glands only, with no lesions whatever in the digestive tract. It is but fair to observe that breathing the dust of the food in eating may have been the means of infecting the lungs. Bacilli might readily be taken in through the tonsils to reach the cervical glands, and these authors urge their belief that they may be absorbed with fat globules into the lacteals en route to the blood-stream, to be deposited for colonization in any region "by election," or as the osteopath would say, "wherever devitalizing causes may have made local weakness." Dr. Ravenel concludes this subject by saying "we may claim that tuberculosis of intestinal origin is more common than post mortem examinations indicate."

The work of the Tuberculosis Congress was quite thoroughly reviewed by Dr. Finley Ellingwood in the *Current Encyclopedia* for August. There was a good deal of objection to some of Koch's views by others present. The topics considered were the germ, its destruction, the prevention of its diffusion, and the care of its victims. Cultivation of possible powers of resistance to its attacks seems to have been ignored, the nearest approach to anything of this sort being merely the betterment of sanitary conditions, where filth may breed disease and reduce vitality.

The *Lancet* recently says that we are not through studying the tubercle bacillus. Prof. Virchow thinks the differences between human and bovine bacilli are probably merely varietal, not specific. An analogy in the case of smallpox is that it cannot be transmitted to the calf directly, while it can to the monkey, and from this animal occasionally to the calf, from which inoculation of the child produces conditions apparently identical with vaccination. Possibly vaccinia may have become differentiated originally from true smallpox in some such manner as this.

The *Bulletin Medical* of July 24th has a report on Climate and Experimental Tuberculosis, in which the writer concludes that "The individual plays the most important role, each rabbit inoculated reacting in a different manner. The results in the different climates will not bear comparison. Even more men can be found who have withstood the invasion of tuberculosis than rabbits, in all sorts of climates."

Thus the dignity of the individual and the race, rather than "The Dignity of the Bacillus," is not without defense, even among the "Microbe Killer Sect" of medical men.

Physical culturists maintain that if the lungs are cultivated by breathing exercises, so as to keep pace with other parts of the body, the person becomes immune to tuberculosis, and may even recover from previous infection. Ostopathy urges the value of physiological resistance in the race and the individual, to be cultivated in all natural ways, and by all means to be guarded by being kept free from devitalizing and weakening influences. Mechanical causes of this character in the body are for the osteopath and sometimes the surgeon to correct. Outside causes, such as microbes, exposure, food, exercise, clothing, occupation, in fact environments generally, may in their effects be strengthening or weakening, according to the present state of the person's reactive powers. Intelligent supervision of these influences should cultivate and maintain resistance, by making these things a basis of reaction for cultivation of strength. Ignorance and inattention to them will result in more and more frequent submission to their "attacks," so that the cultivation is downward intsead of upward, though the causes of reaction are the same. The difference is in the individual—either these causes find deficient reactive power, the reaction making greater weakness, or they find enough power to successfully resist them, the powers thereby getting exercise, by which they go on from strength to strength.

Presumably noxious weeds and hateful beasts have proven later to be of immense value to mankind, in one way or another. May not the same be true of the microbe? Many are now known to be useful, in fact indispensable, as those that "fix" the nitrogen of the air, making possible the storage of proteids in the leguminous plants. Wholesale murder of microbes, with intent to exterminate, may be more nearly suicidal than we might wish.

I do not pretend to say just what shall be done with them, but am quite certain that the human animal should not forget to arouse, cultivate and preserve his vital powers all possible while studying these minute and interesting neighbors.

N. A. B.

OSTEOPATHY AND THE LAW IN COLORADO.

Some time in August Dr. Elizabeth C. Bass, an osteopath of Denver, Col., brought suit before a justice of the peace for pay for professional services rendered. The case was decided against her on the authority of the circuit court's opinion in the Nelson case in Kentucky, the justice evidently not knowing of the reversal of that decision by the appellate court of that state. Dr. Bass appealed to the county court, and when the case was called for trial about Oct 1., the defendant moved for a non-suit. The reasons alleged in support of this motion appear in the opinion of the court rendered in passing upon it. This opinion, which we reproduce in full because of its able exposition of the law as applied to osteopathy in Colorado, is as follows:

State of Colorado, County of Arapahoe, ss. IN THE COUNTY COURT

NO. 30475.

Elizabeth C. Bass, Plaintiff, vs. Frank L. Clark, Defendant.—Ruling on motion for Non-Suit.

The Court: Plaintiff is engaged in the practice of what is know as osteopathy, and instituted this action in the justice court to recover for services rendered the defendant as such. Osteopathy, as appears from the testimony, is a system of treating disease without drugs, principally through manipulation of the body by an operator supposed to be learned and skilled in such occupation, it being claimed that the effect of such manipulation as kneading, twisting and stretching of the muscles and tissues of the body when attacked by disease has the effect of correcting the disorder and enables nature to recuperate the diseased part. It is claimed that the system is entirely different from the treatment of disease as such treatment is ordinarily administered by physicians, the oseopath entirely discarding drugs and medicines, and substituting as a healing or curative agent principally, and almost entirely, scientific mechanical manipulations. It is claimed that the system has been reduced to a scientific basis requiring for its employment, skill, learning and a thorough familiarity with anatomy on the part of the operator.

The evidence discloses that the system is taught in a number of schools or colleges throughout the United States, established for that purpose, and diplomas and certificates are issued to students who have taken the course prescribed by such colleges as necessary to become capable and efficient in what is claimed to be a new art or science of healing.

Counsel for defendant has submitted a motion for a non-suit in this case on the ground that no recovery can be had by an osteopath for services rendered because it is claimed that the evidence discloses that an osteopath is really a physician or prescriber for the sick, and therefor must be duly licensed to practice as required by the statutes of this state, which in 1881 provided an elaborate system for the regulation and practice of medicine, prescribing examinations and qualifications which must be complied with, and any person failing to comply therewith should be guilty of a misdemeanor and punished by fine and imprisonment. The persons embraced within the meaning of this act are thus defined in section 3557 of Mills' Statutes: "Any person shall be regarded as practicing medicine within the meaning of this act who shall profess publicly to be a physician and prescriber for the sick, or who shall attach to his name the title 'M. D.,' 'Surgeon' or 'Doctor' *in a medical sense.*"

Two questions are presented to the court for determination: 1st. Is the plaintiff to be regarded as practicing medicine within the meaning of the act? 2d. If the first question be answered in the affirmative, does this fact, under the evidence and circumstances of this case, constitute a complete defense to the payment of the amount here sought to be recovered for such services?

The plaintiff disclaims any attempt to use the title "M. D.," "Surgeon" or "Doctor" in a medical sense, and also denies that she has ever publicly claimed to be a "physician or prescriber for the sick" as contemplated and intended by this act. The statute was adopted in 1881, with no substantial amendments since that time, and to determine its meaning the court is materially aided, and must in its decision be governed, by well settled rules of construction. It is admittedly a penal statute, and therefore must be construed strictly. It is equally well settled that the words used in an act must be given their popular rather than their technical meaning, and especially with reference to what was meant and intended by the legislature at the time of the adoption of the act; and things that could not well have been embraced within its meaning at the time of its adoption are to be excluded by implication.

Mr. Bouvier defines physician as "a person who has received the degree of doctor of medicine from an incorporated institution; one lawfully engaged in the practice of medicine," and Mr. Black defines the same term as "a practitioner of medicine, or one who practices medicine." This fairly comports with what I believe to be the general and popular definition of this term, and what was intended by the legislature, the purpose no doubt having been to

protect the public against quacks, dishonest and disqualified persons who might attempt to practice medicine. This purpose is a wise and salutary one, recognized in nearly all the states. Legislation in several of the states has been much more stringent, definite and certain than our own act in declaring who shall be considered as practicing medicine within the meaning of such acts, declaring in terms that "any person shall be regarding as practicing medicine who shall operate on, profess to heal, or prescribe for or otherwise treat any physical or mental ailment of another." Such acts might well embrace osteopathy. Since our own statute was adopted numerous attempts have been made to likewise define those who shall come within its provisions so as to unquestionably include certain classes of persons who profess to alleviate physical ailments. The fact that such changes or additions have been made in other states, and attempted in this state, confirm the contention of counsel for plaintiff that under the rules of construction in determining the effect of the act in question the court has no right, if adhering to such rules, as it is its duty to do, to extend the meaning of the act to any particular class of healers or alleged healers who are not clearly within its terms.

Osteopathy as it is now understood and practiced I am satisfied from the testimony was not known or understood at the time of the adoption of the act in question, or any amendment thereto, and I am satisfied that the term "physician" and "prescriber for the sick" could not have been intended to include, and under the rules of statutory construction does not include, those who practice what is now known as osteopathy. A director of physical culture in a gymnasium might be said to prescribe for the sick when he recommends a course of physical exercise without the use of drugs for any particular ailment, as is very frequently the case, and yet if we are to ascribe to this language the meaning contended for by counsel for the defendant, such person could not recover for services, no matter how valuable or how great the benefit derived; so that I am satisfied when the legislature used the language "shall profess publicly to be a physician and prescriber for the sick or attach to his name the title 'M. D.,' or 'Surgeon,' or 'Doctor' in a medical sense," it simply intended a physician, surgeon or doctor as those terms were then and are now popularly understood.

The best test of the physician being then, as it is now, in the popular sense, one who practices medicine or administers drugs in alleviating and curing sickness or disease. It is true that physicians may often prescribe other remedies than drugs, and treat ailments without the use of drugs, but that is no answer to the real question, namely, What class of persons were intended to be embraced within the terms used in the statute? A physician recommends and advises the use of drugs and medicines as a part of the system of medicine, while an osteopath disclaims any such practice in any case. And it fairly appears from the evidence now before the court that nothing was done in this case that could be fairly said to have been an indulgence in or prescription of any drug or medicine, as those terms are commonly understood in a medical sense and as I believe they were intended to be understood by the legislature.

Much stress is laid upon the fact that the plaintiff, at the request of the defendant, in her capacity of a practicing osteopath, attended the defendant's wife in child-birth. It is said that this is a surgical operation and brings the plaintiff within the term "surgeon" as used in the statute. I do not think so. It might as well be said that a midwife was a surgeon, and to my mind the statute certainly recognizes in substance and effect the practice of midwifery as perfectly lawful and negatives the idea that such services were to make the performer thereof a "surgeon" within the meaning of the terms as employed in the act, and therefore preclude her recovery for such services. Plaintiff expressly disclaims being a surgeon as the term is popularly understood, and as I think was intended to be understood by the legislature. Furthermore, the language of the act is that "any person shall be regarded as practicing medicine within the meaning of this act who shall attach to his name the title 'surgeon' in a medical sense." The meaning intended here may be somewhat obscure, but unless specific and clear so as to leave no doubt of its embracing the plaintiff's occupation, it is the duty of the court, under the rules of construction, to give her the benefit of the doubt, and the duty of the legislature, if it would have a different ruling, is to correct the language to conform to the rules.

The evidence *now before the court* is to the effect that the defendant sought the services of the plaintiff as an osteopath, was perfectly satisfied therewith, acknowledged much benefit therefrom, and that he has already paid a part of this bill without complaint and counsel for plaintiff insist that unless the statute prescribes as a penalty that recovery cannot be had for such services it is immaterial whether or not the plaintiff comes within its proscriptions, but finding as I do that the statute does not apply to the practice of osteopathy, this question is unnecessary to decide.

I may say in conclusion that it fairly appears to the court that osteopaths have practiced their method of healing in this state for five or six years without hindrance or attempted restraint, and the Eleventh General Assembly went so far as to recognize and regulate its practice, as is regulated the practice of the various schools of medicine, in order to limit its ranks to those who have been qualified by graduation from its recognized institutions of learning. While this bill was vetoed by the Governor, it was upon the assumption that the present law in no way interferes with osteopathy. It is significant, however, that the prac-

tice has been specifically accorded recognition and regulation by the legislatures of a number of states within very recent years. It has also been recognized by the courts as perfectly legal and in no manner conflicting with statutes like the one here considered.

See State vs. Liffring, 61 Ohio St. 39. Nelson vs. State Board of Health, 57 S. W. Rep., 501, Ky; decided June, 1900. Commonwealth vs. Thompson, 24 Pa. Co. Ct., 667. Commonwealth vs. Shackelford, (Va.) Richmond Nisi Prius Court. State vs. Aries, (Wis.), Milwaukee Circuit Court.

These things, I think, tend to discredit the idea that there is any intention to legislate against it, and on the contrary confirm the idea that there is, or may be, sufficient that is good in the system to warrant its having, in the absence of any specific prohibitory law, a fair opportunity to be tested by time and experience, as has been accorded other schools and systems of the healing art, having for their support any respectable amount of reason or intelligence, which it has rather been the purpose of a broad and liberal-minded public to encourage, the result generally being that if there is anything of good or advantage in a new system it will survive to the interest and benefit of humanity; if not, it will, like all error, perish as it deserves.

The motion for a non-suit is therefore denied.

Notwithstanding this clear victory on the *law* of the case, the judgment was for the defendant. This result was brought about by the testimony of the defendant that Dr. Bass had prescribed drugs (nitre for kidney trouble). Dr. Bass denies that any drugs were prescribed by her, and knowing the teachings and practice of osteopaths as we do, we cannot believe that she was guilty of that indiscretion.

Dr. L. B. Overfelt of Boulder also recently brought an action in justice's court to recover for services for treatment as an osteopathic physician. Justice Adams in passing upon a motion for non-suit filed by the defendant reasoned along much the same lines as the learned judge above quoted. His conclusions were as follows:

I am clearly of the opinion that the practice of osteopathy does not fall within the prohibition of the statute, nor is it contemplated anywhere by the statute as the practice of medicine, and it would be doing violence to the language of the statute and of all rules of just and righteous interpretations of statutes to say that that which is not evil in itself is evil by implication. In other words, that all acts that in themselves are good, or indifferent, not being prohibited by a statute, are not criminal.

The defense, therefore, that this statute prohibits the practice of osteopathy as a branch of medicine is not well taken, and the motion for non-suit must be denied.

It need hardly be said that the medical board is not pleased with the decisions in these cases, as the courts clearly hold that the practice of osteopathy is not the practice of "medicine" within the meaning of that term as used in the law. It is understood that the board is desirous of instituting wholesale criminal prosecutions against the osteopaths of that state on the charge of violating the medical laws, but the following from the Denver *Post* of Oct. 17 indicates that their spleen in this matter is not likely to be gratified.

District Attorney Lindsley will probably begin a test case in the West Side court in response to the demand of allopathic physicians and the state board of medical examiners for prosecutions of osteopaths, science healers, etc.

"There will be no wholesale arrests and prosecutions, however," said the district attorney today. "I am willing to give the doctors one test case in the district court, but I shall not burden the records with any haphazard prosecution of every one they designate.

"The county court has already decided that osteopathic practitioners do not come within the provisions of the medical laws of the state, and to grant the request for prosecution in the district court we will probably take some case that will be satisfactory to both sides. I understand one person concerned is a graduate of the Bolles Institute of Osteopathy, and that one may be used for the test, but I shall see Mr. Bolles first, having seen the other side, and be prepared to proceed fairly."

It is only by the court's adopting the broad definition of medicine—"That branch of science which relates to the prevention, cure or alleviation of the diseases of the human body"—that they could hope to secure the conviction of an osteopath who practiced osteopathy exclusively. The possibility of

such a position being taken by the courts of Colorado is indeed very remote when we consider that the courts of Ohio, Kentucky, Pennsylvania, Virginia and Wisconsin, in construing similar penal statutes, have restricted the word "medicine" to its popular meaning.

An information had been filed against Dr. Elizabeth Bass, but has been postponed as they don't like to make out a case against a woman. Dr. N. A. Bolles, in writing about this case, and about what the osteopaths propose to do, says:

> The information filed against her and Dr. J. T. Bass is of the most general kind, as if they expected the prosecuting attorney to ferret out all the evidence, and get the particulars for every one they think they have reason to suspect of infringing upon the law. They are anxious to have a test case, with understanding that conviction is to be rendered by the judge, with expectation of carrying it to the supreme court, and we see no need of anything of the sort. We think we shall let them bring charges whenever they can, or if they will make their specific charges to suit us, we may see our way clear to furnish the necessary evidence to prove the allegations, and let the court rule as it may think proper. We have nothing to gain under the present law in having the broad sense engrafted upon its meaning. It would make us subject to jurisdiction by a board of our natural enemies, as well as bringing a lot of other people under their supervision who were never intended to be touched by it.

It is proper to add that the Colorado osteopaths are not at all dismayed by the hostile attitude of the medical men. Dr. Bolles, in summing up the situation there, says:

> The outlook in Colorado is, in my opinion, brightening, and this attack will be helpful in agitating the movement for recognition by the legislature a little over a year hence.

MONTANA EXAMINATION FOR OSTEOPATHS.

In Montana the law provides for an osteopathic board to examine applicants for a license to practice osteopathy. This board consists of Drs. C. W. Mahaffay, A. M. Willard and O. B. Prickett. The last examination was held at Helena, Sept. 2, 3 and 4. There were four applicants, three of whom were granted certificates. This makes a total of seventeen that have thus far been licensed to practice in that state.

Below we give a list of the questions used in the last examination:

ANATOMY.

1. Name the ligaments of the knee joint.
2. Describe one of the following bones: humerus, atlas, tibia.
3. Give cutaneous distribution of ulnar nerve, and state what muscles it supplies.
4. Describe the orbits, giving names of bones forming each.
5. Name the three principal openings of the diaphragm, and state what structures pass through each.
6. (a) Mention muscles attached to the great trochanters of femur. (b) To the greater tuberosity of the humerus.
7. (a) The muscles extending the leg receive their nerve supply from what nerve? (b) From what spinal nerves is this nerve derived?
8. Describe each of the following muscles, giving insertion and nerve supply of each: Occipito frontalis, scalenus posticus, latissimus dorsi, biceps, gastrocnemius.
9. Give nerve supply of hip joint.
10. Describe portal circulation.

HISTOLOGY AND PATHOLOGY.

1. Describe histological structures of coats in larger arteries.
2. Define septicemia and pyemia, giving specific characteristics of each.
3. What are the elementary tissues of the body?
4. Define thrombus and embolus, distinguish between the two.
5. What is caries of bone? How does it differ from necrosis?
6. What is cicatrization?
7. What are the changes in the spinal cord in locomotor-ataxia?

8. Describe the pathological changes occurring in the small intestine in typhoid fever.
9. Give description of malpighian bodies and uriniferous tubules.
10. What morbid changes take place in lung tissue in lobar pneumonia?

CHEMISTRY.

1. Define chemistry, atom, molecule, solution.
2. Give a definition for an inorganic chemical compound.
3. Define emulsification and saponification.
4. Describe the action of the pancreatic enzymes.
5. What per cent. HCl exists in gastric juice ordinarily, and what is its action?
6. What are the constituents of blood plasma?
7. What is the difference in the chemical composition of air inhaled and air exhaled?
8. How does oxygen unite with the blood and how is it given off to the tissues?
9. What is the action of the salival enzyme?
10. Give in detail a qualitative test for detection of albumen in urine.

SYMPTOMATOLOGY.

1. Give symptoms of cerebro-spinal meningitis.
2. Give points of difference between intestinal occlusion and appendicitis.
3. What are the principal symptoms of parenchymatous nephritis?
4. Of cancer of the stomach?
5. Give the points of difference between backward luxation of radius and ulna, and supra-condyloid fracture of humerus.
6. Give differential diagnosis of measles and scarlet fever.
7. What are the symptoms of morbus coxarius?
8. Give general points of distinction between a dislocation and a fracture.
9. Give symptoms of dislocated shoulder.
10. Of fractured clavicle.

GYNECOLOGY AND OBSTETRICS.

1. Describe the uterus, giving nerve and blood supply.
2. What are the general predisposing and exciting causes of gynecological diseases?
3. Describe and differentiate anteversion and retroversion.
4. What is puerperal septicemia and what are its causes?
5. How would you control a post-partum hemorrhage?
7. Name important nerve centers in osteopathic obstetrics.
8. Describe in detail what treatment you would give a woman in first stage of labor.
9. Define placenta previa, involution, inversion, sub-involution and prolapsus.
10. How would you diagnose between an anteflexion and a fibroid tumor on anterior wall of uterus?

PHYSIOLOGY.

1. Describe the mechanism of respiration.
2. What are the normal heart sounds, and tell what causes them?
3. Describe deglutition.
4. Describe in detail movements of stomach during digestion.
5. What is the function of the pancreas.
6. What is the physiological value of bile?
7. Give functions of third cranial nerve.
8. Explain how a reflex action is produced and cite an example.
9. What is the principal function of the cerebellum?
10. In what manner are end products of digestion absorbed into the blood?

PRINCIPLES AND PRACTICE OF OSTEOPATHY.

1. Carefully tell how to proceed osteopathically with a case of gall stones, and state what lesions usually occur.
2. Where are the lesions in spastic paraplegia, sciatica, blindness?
3. (a) Describe a common method of setting a fifth rib which is displaced upward. (b) Tell how to set a twelfth rib which is displaced downward.
4. Discuss briefly how work upon the body externally gains internal results.
5. In a case of innominate lesion, in which the limbs are not of the same length, tell how you would diagnose the condition fully.
6. Describe treatment which you would give to decrease heart's action.
7. Name two lesions either of which might cause hemorrhoids, dysmenorrhea or cystitis.
8. Discuss the rationale of osteopathic treatment in ordinary forms of goitre.
9. Where would you examine for the cause of the trouble in the following case: "The muscles over the patient's right shoulder are painful and the arm cannot be raised above the shoulder. The pain is especially located at the insertion of the deltoid muscle."
10. How would you treat a child having worms?

MEETING OF VERMONT STATE OSTEOPATHIC ASSOCIATION.

The second annual meeting of the Vermont State Osteopathic Association was held Oct. 15th and 16th in the office of Dr. Lewis D. Martin at Barre, Vt.

The visiting osteopaths were given a banquet by Dr. Martin at his home before the opening session.

Dr. W. W. Brock of Montpelier, president of the association, called the evening session to order at 8 o'clock. Owing to the absence of the secretary, Dr. E. E. Beeman, the chair appointed Dr. G. E. Loudon of Burlington secretary pro tem. The officers and committees then submitted their reports. These showed that the science of osteopathy was making good progress throughout the state. The following officers were then elected for the ensuing year:

President—Dr. W. W. Brock, Montpelier, Vt.

Vice-President—Dr. Guy E. Loudon, Burlington, Vt.

Secretary-Treasurer—Mrs. S. D. Pemberton, D. O., St. Johnsbury, Vt.

Executive Committee—Chas. G. Wheeler, Brattleboro, Vt.; Lewis D. Martin, Barre, Vt.; Samuel M. Knauss, Montpelier, Vt.

Two new members were admitted, Mrs. S. D. Pemberton, graduate of the American School of Osteopathy, Kirksville, Mo., and Dr. Samuel M. Knauss, graduate of the Atlantic School, Wilkesbarre, Pa.

The Association adopted resolutions to be sent to the American Osteopathic Association denouncing the "fakes," advertising osteopathy taught by mail, etc.

The resolutions are as follows:

Whereas. It has come to the notice of the members of the Vermont State Osteopathic Association, now assembled at its second annual meeting, held in Barre, Oct. 15th and 16th, that E. D. Barber, president, and B. A. Turner, secretary, of the National School of Osteopathy, located at 4000 Cottage Grove Ave., Chicago, are advertising in the September and October numbers of Munsey's Magazine (front part) and other publications, to teach osteopathy by mail; and,

Whereas, We as an association do emphatically denounce such methods, which we believe to be detrimental to the best interest of osteopathy, and that the present high standard of the science can be best maintained by the suppression of such methods. Therefore, be it

Resolved, That we, the members of the Vermont State Osteopathic Association, do hereby request that the American Osteopathic Association investigate the matter and take such steps as it seems wise, to repress, restrain, put down, overthrow, overpower, overwhelm, stop, smother the same, whether found in Chicago or any other city in the United States.

Resolved, That a copy of these resolutions be sent to the American Osteopathic Association and that a copy be sent to each of the leading osteopathic journals for publication.

MRS. S. D. PEMBERTON, D. O.,
L. D. MARTIN, D. O.,
C. G. WHEELER, D. O.,
Committee.

The following members were appointed by Dr. Brock to read papers at our next meeting:

Dr. McIntyre—Gynecology.

Dr. Knauss—Dietetics.

Dr. Loudon—Vaccination.

Dr. Martin—Neurasthenia.

Mrs. Pemberton, D. O.—Dislocations.

Following the business session Dr. Guy E. Loudon presented a very interesting and scientific paper on "Neuralgia." Dr. Chas. G. Wheeler gave a splendid talk on vaso-motor nerves and their centers.

After the farewell session the members were very much delighted with the osteopathic excursion by rail, planned by Dr. W. W. Brock, through the green hills of Vermont, visiting the granite quarries and numerous places of interest. The train was beautifully decorated in A. S. O. colors. Many citizens of Montpelier and Barre participated in the pleasure.

The absence of two members, Mrs. G. E. Loudon, D. O., and Dr. McIntyre, was much regretted.

MRS. S. D. PEMBERTON, D. O.,
Secretary.

NEW JERSEY OSTEOPATHS ORGANIZE.

The osteopaths of New Jersey met at the offices of Drs. S. H. McElhaney and Violetta S. Davis, 19 West Park St., Newark, N. J., on Oct. 17th and organized the New Jersey Osteopathic Society, its object being "to better co-operate with the American Osteopathic Association, to advance the science of osteopathy in New Jersey and to unite its practitioners more closely in objects of mutual interest and advantage."

A constitution was adopted and the following officers elected for the ensuing year:

President—Dr. W. J. Novinger.

Vice-President—Dr. S. H. McElhaney.

Secretary-Treasurer—Dr. Geo. F. Nason.

Executive Committee—Dr. S. H. McElhaney, Dr. G. D. Herring, Dr. D. W. Granberry, and the President and Secretary *ex-officio* members.

The following practitioners were present:

Dr. E. W. Christensen, Paterson.
Dr. S. C. Matthews, Paterson.
Dr. J. N. Helmer, East Orange.
Dr. G. DeWitt Herring, Plainfield.
Dr. Geo. R. Boston, Elizabeth.
Dr. D. Webb Granberry, Orange.
Dr. W. J. Novinger, Trenton.
Dr. Geo. F. Nason, Montclair.
Dr. C. W. McCurdy, representing Drs. O. J. Snyder and M. W. Pressly of Atlantic City.
Dr. S. H. McElhaney, Newark.
Dr. Violetta S. Davis, Newark.

Prof. McCurdy, of the Philadelphia College of Osteopathy, gave a short talk before the society.

Those present greatly enjoyed the occasion and the organization starts out with enthusiasm.

The next annual meeting will be held in October, 1902.

FOR SALE—Thoroughly established osteopathic practice in one of the best towns in Tennessee. Population 5,000. Entire practice can be turned over to purchaser immediately, who must be reliable in every way. A bargain to some one who desires to enter at once into a good paying practice. Address "Reliable Osteopath," care of the JOURNAL.

OSTEOPATHY AT THE WORLD'S FAIR IN 1903.

At the meeting of the Alumni Association of the American School of Ostopathy held at Kirksville, Mo., last summer a movement was inaugurated looking to the erection of a building on the World's Fair grounds in St. Louis in 1903. It was at first the intention that the building should be erected by the graduates of the above school and be used for making an osteopathic exhibit, and as an osteopathic home during the fair where the A. S. O. graduates would act as host to the graduates of other schools. A committee consisting of the following osteopaths was appointed to have charge of the work: A. G. Hildreth, H. E. Patterson, Ellen L. B. Ligon, A. L. McKenzie and Miss M. Schaub, with Dr. Hildreth as chairman.

After due consideration the above committee decided that it would be better to make of this project a national affair, and to ask the graduates of all schools to participate in the undertaking. Accordingly they have asked that the matter be taken up by the A. O. A. and that the president appoint a commission to carry the work to completion. The question has been submitted to the trustees and it is probable that they will decide in accordance with the above suggestion. The committee that has thus far had the work in hand will likely be asked to continue and others will be added by the president.

The funds for the erection of the building are to be raised by popular subscription among the members of the profession, and thus no expenditure will be required of the Association.

Dr. Chas. Z. Miller, a graduate of the June, 1900, class of the A. S. O., who was located in Huntsville, Alabama, died in that city on Oct. 10th at the age of twenty-five years, after a six weeks' illness with typhoid fever. His remains were taken to his former home in Iowa for interment. A large circle of friends will deeply lament the untimely death of Dr. Miller.

The Mt. Ayr (Iowa) *Twice-a-Week News* pays him the following tribute:

> Dr. Miller came of sturdy stock. He was robust in health, vigorous in intellect, full of the energy that compels success, and morally pure. His death is sad not alone in the ending of a happy and worthy existence, or in the grief brought to his relatives, but in the bright hopes cut down. He was shortly to have returned to the north and gone into partnership with his brother in Centerville. He also was to have been married this month to Miss Beatrice Harrison, an estimable young lady of Huntsville, a cousin of the late President Harrison.

It happened at the two last annual meetings that carefully prepared addresses were delivered by Presidents Hannah and Hulett, respectively. From the character of these productions we are led to hope that the address of the president, along lines similar to those followed by the above mentioned, will become a permanent feature of the annual meetings.

The Colorado State Osteopathic Association met in Denver on Oct. 7. It was unanimously decided by the Denver contingent to fight the attempted encroachments of the medical board.

The annual meeting of the New York State Society of Osteopaths will be held in New York City on Wednesday, Oct. 30th.

PERSONALS.

Dr. Asher Wingard has moved from Yonkers, N. Y., to Cumberland, Md.

Dr. Maurice B. Harris and Miss Florence White, both of St. Louis, were united in marriage on Monday, Oct. 21.

Dr. W. H. Wilderson of Memphis, Tenn., is back at his office after spending a few months looking over the Pacific coast country.

Dr. A. M. Willard of Dillon, Mont., recently spent a few days at Kirksville, Mo., visiting relatives there and also his *alma mater.*

Dr. Emilie Greene of Jackson, Mich., spent the summer in Gloucester, Mass. She returned to Michigan late in September and opened an office in Detroit.

Dr. Elizabeth Ewing has removed from Cleveland, O., to Atlanta, Ga. Having lived a number of years in the middle south, the northern climate proved uncongenial.

It is announced that the wedding of Dr. E. H. Shackleford, of Richmond, Va., to Miss Maud Fout, of Kirksville, Mo., will take place in the latter city on Wednesday, Nov. 6, at 8 o'clock.

Cards are out announcing the marriage of Dr. J. S. Baughman of Burlington, Iowa, to Nanny Randolph Ball of Washington, D. C. The wedding occurred in Washington on Sept. 18.

Dr. Chas. C. Reid, who for the past two years has been located at Warren, Ohio, has transferred his practice at that place to his brother, Dr. Geo. W. Reid, and has removed to Worcester, Mass.

Drs. Hulett, Davis and Teall, constituting the committee on education of the A. O. A., had a meeting in Buffalo, N. Y., on Oct. 25, at which various matters in connection with their work were discussed.

Dr. C. L. Rider, late demonstrator of anatomy in the American School of Osteopathy, has severed his connection with that institution and has opened an office for the practice of osteopathy in Detroit, Mich.

Dr. Geo. F. Nason, secretary of the A. C. O., a member of the Board of Trustees, A. O. A., and late of the Southern School of Osteopathy at Franklin, Ky., has recently removed to New Jersey and entered the practice at Montclair.

Dr. S. C. Matthews, an ex-president of the A. A. A. O., and one of the founders of the Atlantic School of Osteopathy at Wilkes-Barre, Pa., has retired from that institution and opened an office for practice in Paterson, N. J., instead of in New York City, as was reported several months ago.

Dr. Silas Dinsmoor, late professor of theory and practice of osteopathy and chemistry in the Southern School at Franklin, Ky., has formed a partnership with Dr. H. G. Kellogg of Kirksville, Mo., for the practice of osteopathy. This firm has opened an office at 636 Fourth Ave., Louisville, Ky.

Dr. D. C. Westfall of Findlay, O., was arrested lately at the instance of a former patient, who, when asked to pay for treatment received, threatened

arrest if payment was insisted upon. When the case came to trial the doctor was acquitted of the charge of practicing medicine. The net result was some good advertising and an immediate increase in his business. .The medical board evidently takes but little heed to its steps when an osteopath is its quarry.

MEDICAL PRACTICE AND THE LAW.

Champe S. Andrews, Esq., counsel to the Medical Society of the State of New York, contributed an article under the above caption to the July Forum.

In effect, and in brief, his conclusions are that any one who shall in any manner attempt to prevent, cure, or alleviate disease should be considered as practicing medicine and should be obliged to comply with the general medical practice acts. Unfortunately for his contention, courts and legislatures have already decided in numerous instances that Osteopathy is an independent system of healing. As such the Osteopaths will not submit to such changes in the law as would force them to spend a considerable portion of their time in the study of *materia medica*. For those who in their practice experiment with drugs and poisons it would be difficult to get the time spent in their study too long. Indeed, they should be compelled to study until they learn, as have so many in the medical profession, that far more harm than good results from the administration of drugs.

The whole of Mr. Andrews' argument is really based upon two assumptions, both erroneous. The first, that Osteopaths are "without skill and knowledge in the treatment of disease." The second assumption is that medicine is a science, an exact science, in the sense that law, chemistry, engineering, navigation, etc., to which he attempts to compare medicine, are sciences. We could fill columns of the JOURNAL with statements of eminent medical men going to show that medicine in the popular sense of that term is not a science. But doubtless it would be pertinent and equally as effective to quote the opinion of another New York lawyer who, to say the least, is equally as eminent as Mr. Andrews, and whose opinion was unbiased by a fee. This opinion shows the difference between law and medicine as sciences, and incidentally affords a powerful argument against giving a monopoly of the healing business to the medical doctors.

Hon. Joseph Choate, present Ambassador to England, in an address before the American Bar Association a few years ago, said: "We love the law because, among all the learned professions, it is the only one that involves the study and the pursuit of a careful and exact science. Theology was once considered an immutable science, but how it has changed from age to age! And then as to medicine? How its theories succeed each other in rapid revolution, so that what were good methods, and healing doses, and saving prescriptions a generation ago are now condemned, and all the past is adjudged to be empirical."

HOW THEY WRITHE!

The following ebullition under the heading "Pseudo-Science in the Wrong Place," appears in a recent issue of the Cleveland Journal of Medicine:

"Physicians will be interested to know that the 'Annual Cyclopedia,' issued by D. Appleton & Company as a supplement to the American Cyclopedia, recognizes 'osteopathy' by a descriptive article, but entirely ignores medicine and all its branches. This is a point that physicians should carefully remember. The article upon 'Osteopathy' gives one an unexpectedly keen insight into the narrow education and feeble mental grasp of the editor of an 'Annual Cyclopedia.' It is astounding to read in a reference work that assumes some pretension to authority the following description of 'Osteopathy:' 'A method of treating diseases of the human body without the use of drugs by means of manipulation applied to *various nerve centers,* chiefly those *along the spine.*'

"Just think with what contempt every beginner in physiology will hereafter view an editor who permitted that twaddle to appear in his volume. 'Nerve centers *along* the spine ! !' Does the editor of the 'Annual Cyclopedia' know that anatomy has been carefully studied for several centuries and has become an exact science? Is it supposable that three other people in the United States are so ignorant? It is humiliating to think that an old and honorable publishing house, which has published enough good medical books to have some elementary knowledge of medical science, should so far forget its self-respect and its standing as to publish under its own name an article so palpably in conflict with the most elementary facts of anatomy and physiology."

We will admit that the Journal's quotation from the cyclopedia is not the most brilliant example of exact expression, and yet not "three people in the United States" but would understand on reading it that the manipulation was not applied directly to the spinal cord itself. But this, the vulnerable point in the statement, is entirely ignored by the Journal, which seems to point its scorn and irony against the implied statement that there are such things as spinal centers at all, and seeks to prove the correctness of its position by quoting *the exactitude of the science of anatomy!* Shades of Gray and Claude Bernard! And it presumes to prate of ignorance!

The editors of the Journal are known to be, in their sane moments, fairly reasonable men, but the above article must have been penned at a time when the excess of the writer's venom had resulted in mental auto-intoxication. It is as full of acridity as a green persimmon. It implies all sorts of dire vengeance against D. Appleton & Company because medicine is ignored in this annual. D. Appleton & Company are able to take care of themselves, and we would not presume to speak for them, but we would remind the Journal that these annuals, being issued for the purpose of keeping the cyclopedia up to date, contain two classes of articles: First, those relating to new subjects; second, those relating to advances in old subjects. Therefore, if medicine is not referred to, the reason is self-evident; it is not new and it has made no advance during the year.

Really the thing that hurts is, that in spite of all that they can do, Osteopathy is receiving recognition from "old and honorable" institutions of all kinds where narrow prejudice is not the prevailing motive. C. M. T. H.

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IN GOOD STANDING IN AMERICAN OSTEOPATHIC ASSOCIATION.

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Secretary—Miss Irene Harwood, 308 N. Y. Life Bldg., Kansas City, Mo.
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Note—The letter preceding the name indicates the school from which graduated, thus:
A.—American School, Kirksville, Mo.
At.—Atlantic School, Wilkesbarre, Pa.
Bn.—Boston Institute, Boston, Mass.
M.—Milwaukee College, Milwaukee, Wis.
N.—Northern College, Minneapolis, Minn.
P.—Pacific School, Los Angeles, Cal.
S. C.—Still College, Des Moines, Iowa.
S. S.—Southern School Franklin Ky.

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A.—Lorenz, Chas. E., Opelika.
A.—Morris, T. C., 502 and 504 Jefferson County Bank Bldg., Birmingham.
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P.—Tasker, Anna E., 1324 Catalina St., Los Angeles.
P.—Wright, A. A., Theatre Bldg., San Jose.
P.—Wright, Anna A., Theatre Bldg., San Jose.

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A.—Bolles, Mrs. Nettie H., 1457-59 Ogden St., Denver.
A.—Brown, L. S., 33 Masonic Temple, Denver.
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It is not stated whether the motion carried unanimously, by a two-thirds vote or by a bare majority—but that is a non-essential. It is sufficient to know that the supreme tribunal has spoken and from its decision there is no appeal.

We do not know whether the system of diagnosing by ballot is to become general among medical men or not, but are inclined to the opinion that if it should the results would probably be no worse for their patients. While this is not, strictly speaking, our affair, we would suggest to our medical friends, if this system is to become a permanent feature with them, that after a vote has been taken on a question of diagnosis by the local doctors any one of them who may feel himself aggrieved by the verdict should have the right to appeal to the National Association, when a vote by that body could be taken and the matter authoritatively and irrevocably determined.

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